Service Manual

LCD Monitor Acer AL2016

Service Manual Versions and Revision

No.	Version	Release Date	Revision
1	1.0	2005/08/25	Initial Release

Acer AL2016 Service Manual

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Chapter 1- PRECAUTIONS & SAFETY NOTICES

1. SAFETY PRECAUTIONS

This monitor is manufactured and tested on a ground principle that a user's safety comes first. However, improper used or installation may cause damage to the monitor as well as to the user.

WARNINGS:

- This monitor should be operated only at the correct power sources indicated on the label on the rear of the monitor. If you're unsure of the power supply in you residence, consult your local dealer or Power Company.
- Do not try to repair the monitor by yourself, as it contains no user-serviceable parts. This monitor should only be repaired by a qualified technician.
- Do not remove the monitor cabinet. There are high-voltage parts inside that may cause electric shock to human bodies.
- Stop using the monitor if the cabinet is damaged. Have it checked by a service technician.
- Put your monitor only in a lean, cool, dry environment. If it gets wet, unplug the power cable immediately and consult your closed dealer.
- Always unplug the monitor before cleaning it. Clean the cabinet with a clean, dry cloth. Apply non-ammonia based cleaner onto the cloth, not directly onto the class screen.
- Do not place heavy objects on the monitor or power cord.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety visual inspections and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Before replacing any of these components read the parts list in this manual carefully. The use of substitute replacement parts, which do not have the same safety characteristics as specified in the parts list, may create shock, fire, or other hazards.

3. SERVICE NOTES

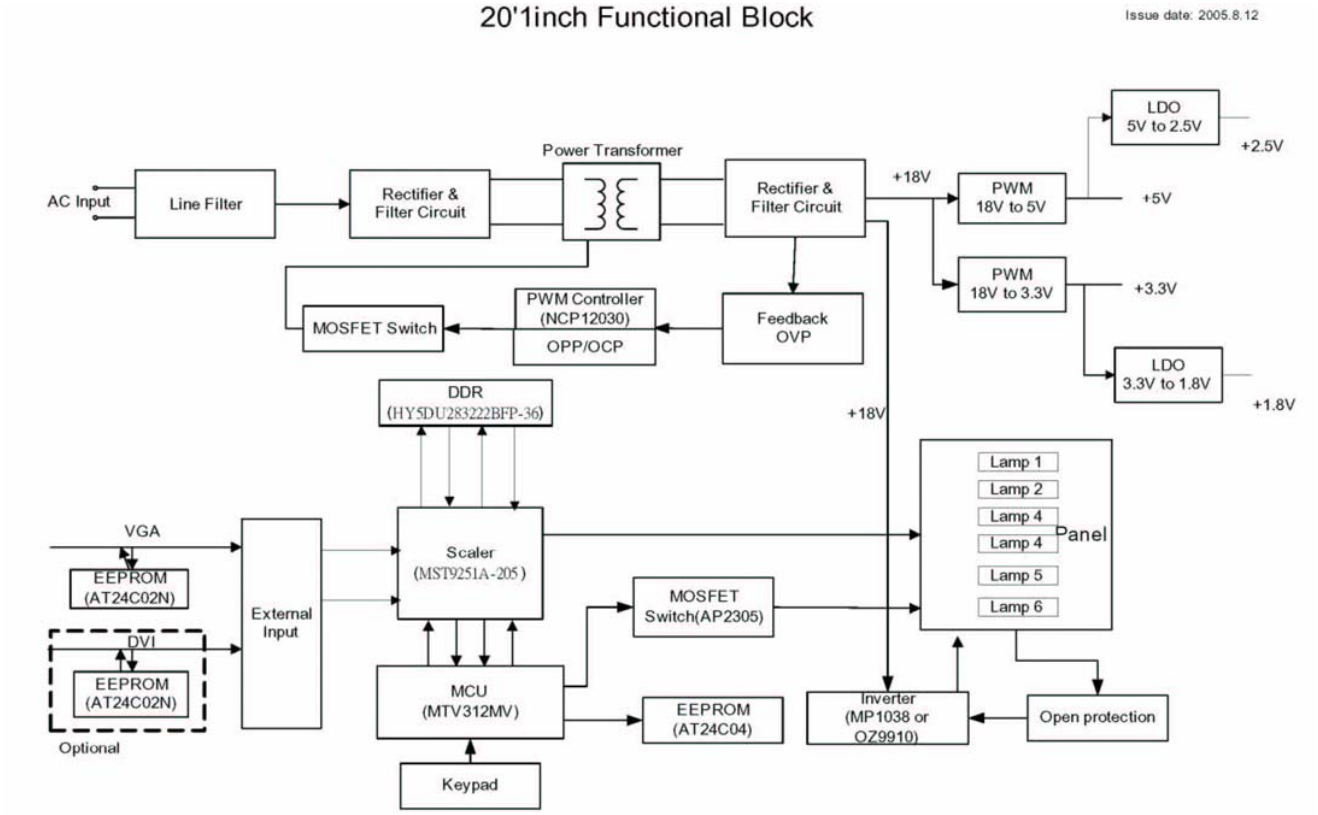
- When replacing parts or circuit boards, clamp the lead wires around terminals before soldering.
- Keep wires away from high voltage, high temperature components and sharp edges.
- Keep wires in their original position so as to reduce interference.
- Adjustment of this product please refers to the user' manual.

Chapter 2- SERVICE TOOLS & EQUIPMENT REQUIRED

1. SIGNAL GENERATOR
2. MULTIMETER
3. SCREW DRIVER
4. OSCILLOSCOPE
5. Soldering IRON
6. SOLDER
7. VGA Cable (15pins point to point)
8. Color Analyzer
9. Myson412 ISP Board
10. EDID Board
11. EDID program file

Chapter 3- CIRCUIT THEORY

1. Functional Block Diagram



2. Electronic Circuit Theory

2.1 Switching Mode Power Supply

2.1.1 AC Current Input Circuit

P801 is a connector for connecting AC Power. F801 is a fuse to protect all the circuit. AC input voltage is from 100V to 240V. R801 and R802 joined between two inputting main circuit to prevent man from shock. L801 is used to clear up low frequency wave. C801 and C802 are used to discharge the waves that L801 produced. High frequency waves are damped by C801 and C802. D801 is a rectifier which composed of 4 build-in diodes, it inverts AC to DC.

2.1.2 High Voltage to Low Voltage Control Circuit

C804 is used to smooth the waveform from rectifier. IC802 is a highly integrated PWM controller, which control the power MOSFET Q804. When rectified DC high voltage is applied to the DRAIN pin during start-up, the MOSFET is off initially, and the capacitor C807 be charged through D802,R803 and the HV pin of IC802,when the voltage VCC reaches the threshold level 12.8V,IC 802 start up and create a PWM waveform to control the power MOSFET, then energy is transferred to secondary terminal through the transformer T801,the auxiliary voltage 12V and the output voltage 18V be created ,the auxiliary voltage supply a continue current to IC802,the level of out put voltage is feedback to FB pin of IC802 through R823,R837,R822,IC803 and IC801 witch control the duty of the PWM waveform, then all the convert circuit go to a stable operating station.

R805 R806 R835 ZD801 ZD806 and Q801 formed a under input voltage protection circuit , only the input AC voltage over the threshold level approximately 63V AC, the switch Q801 can be on and then the auxiliary voltage can supply a continue current to IC802;R808,R807,R836,R812,R815,R839,D806 and Q805 formed a over line current protection circuit witch limited the input power under approximately 63W. ZD802 will be on when the output voltage is too high or the feedback circuit open, the current will drive transistor Q805 open through R830, D814 and made IC802 off; the high voltage spike created by transformer's primary winding during the transistor turn off will be consumed through

D804 R813 R814 and C806, This will prevent MOSFET from being damaged under large current impulse and voltage spike.

2.1.3 DC_18V, DC 5V and DC_3.3V Output Circuit

For DC 18V, D807 is used to rectify the inducted current. R816 and C814 are used to store energy when current is reversed. The parts including C815,C816,C817 and L802 are used to smooth the Voltage waves.

For DC 5V, a PWM DC to DC circuit is used to get DC 5V from DC 18V. IC804 is the PWM controller. C826 decide PWM operation frequency. Q802, D808 and D810 made up of buck circuit to get DC 5V. C825, B801, C824 and C820 are used to smooth the Voltage waves.

For DC 3.3V, a PWM DC to DC circuit is used to get DC 3.3V from DC 18V. IC805 is the PWM controller. C829 decide PWM operation frequency. Q806, D811 and D812 made up of buck circuit to get DC 3.3V. C832, B802, C830 and C833 are used to smooth the Voltage waves.

2.1.4 Feedback and OVP Protect Circuit

Pin R of IC803 is supplied 2.5V stable voltage. It is connected to 18V through R823, R837 and R822. R823 R837 and R822 are output sampling resistor. When the sampling voltage more than 2.5V or less than 2.5V, feedback current control IC802 to change pulse width. That can stabilize the out put voltage through transformer T801.

Q803, R828, C834, R827, ZD803, ZD804 and ZD806 made up of over voltage protection circuit. When DC out put 18V over 20V, the ZD803 zener will breakdown. If DC out put 5V over 5.6V, the ZD804 will breakdown. If DC out put 3.3V over 3.9V, the ZD805 will breakdown. Any zener of ZD803, ZD804 and ZD805 breakdown, the Q803 be triggered. Then the PWM controller (IC802) stop output switch waveform. But the IC802 is a recovery controller. When remove the issue, DC out put will automatically recover.

2.2 I/F Board Circuit

2.2.1 RGB CAPTURE

- Signal RED,GREEN,BLUE input through CN102 #1,#2,#3, Stop DC via C117, C118 and C119, and then enter into U105 (MST9251A) analog input terminal #33,#30,#28, and then MST9251A deals with signal internally. D103,D104,D105 are ESD protector to prevent U105 from ESD.
- Signal DDC_SCL (series clock) inputs via CN102#15, and then passes through ZD105 Zener for ESD protection, goes into EDID EEPROM IC U103 #6.
- Signal DDC_SDA (series data) inputs via CN102#12, and then passes through ZD104 Zener for ESD protection, goes into EDID EEPROM IC U103 #5.
- Signal TTL vertical sync. (Vsync) inputs via CN102 #14, and then clamped by ZD103 Zener, passes through R122, and then goes into IC U105 (MST9251A) #37.
- Signal TTL horizontal sync. (Hsync) inputs via CN102 #13, and then clamped byZD101 Zener, passes through FB103,R123, and then goes into IC U103 (MST9251) #36.
- CN102#5 is defined as cable detect pin, and then passes through ZD104 Zener and R137 for ESD Protection. This detector realized passes through R145 Pull hight, go into U107 #31.
- U103 +5V is supplied by PC via CN102#9, or supplied by Monitor self via D102.
- U103 is an EEPROM IC which is memory and EDID data saved in it.

2.2.2 Buttons Control

- Button “Power” on right side bezel connects to U107 (MTV312) #41 through R155, via CN103#4.
- Button “AUTO” “LEFT” “RIGHT““MENU” on right side bezel connects to U107 (MTV312) #3,#2,#1,#42 through R149,R150,R153,R154,via CN103 #8, #7, #6, #5.
- U104 is an EEPROM IC which memory factory setting and save the value adjusted by user.
- SCL on U104 #6 and SDA on U106 #5 flow into U107 (MTV312) #13, #14.
- LED Indicator on Front Bezel
  a. When press button “power”, U107 (MTV312) #26 sends out low potential, via R151,then launch Q105, flow to CN103 #3 on keypad, LED Green ON.
  b. When in “Suspend” mode, U107 (MTV312) #27 sends out a low potential, via R152, then launch Q106, flows to CN103 #2 on keypad, LED Amber ON.

2.2.3 Scaler IC Mstar CHIP U105 (MST9251A)

- U105 (MST9251A) #160, #161, #166~#171 output 8 bit even LVDS digital data to panel control circuit through CN105 with a separate differential clock via #164, #165.
- U105 (MST9251A)) #174, #175, ##178~#181,#186,#187 output 8 bit odd LVDS digital data to panel control circuit through CN105, with a separate differential clock via #176, #177.
- U105 (MST9251A) #201 outputs "DIMMER" PWM signals to control CCFL brightness.
- U105 (MST9251A) #106, #107 output a differential clock to DDR , with a parallel resistor R169 is between MCLK+ and MCLK-.
- U105 (MST9251A) #105,#110, #111, #112, #115, #116, #100, #101, #133, #134, #81, #153 send series of control signal to DDR.
- Nets AR0~AR11 are address select bus from Scaler to DDR.
-Nets MDATA0~MDATA31 are data bus between Scaler and DDR.
Please refer to MST9251A Pin Assignments table in page

2.2.4 MCU Myson chip U107(MTV312)

- U107 (MTV312) #16 output PANEL_ENABLE high potential to make Q103 conducted, and then make Q102 conducted, +5V flow to CN105#1, #2, #4 as Panel VDD "VLCD" .
- U107 (MTV312) #9 output CCFL_ENABLE low potential to control Inverter on/off.
- TCLK by Crystal 12MHz input to U107 (MTV312) #11, #12.

2.2.5 DDR Sumsung chip K4D263238G-VC36

-U106 is a frame buffer DDR. Control by Scaler via communication bus.

2.2.6 Regulator Circuit

- +5V is from switching mode power supply for U103 and Panel used.
- +3.3V is from switching mode power supply for U104, U105, U107 used.
- +2.5V generates from +5V through C112 filtering D101 Dropping down and U102 which is output 2.5V LDO for U105 and U106 used.
- +1.8V generates from +3.3V through C108 filtering by U101 which is output 1.8V LDO, for U105 used.

3. Inverter circuit

3.1 Low voltage to high voltage circuit

18VDC provides the power for IC501 through F501 from power board; the control signals Brightness and ON/OFF come from I/F board. ON/OFF signal connect to pin8 of IC501 and makes IC501 enable. Brightness signal connect to pin7 of IC501 and regulates the panel brightness, R509, D501, R511, C510 make up a network of delaying time circuit for ON/OFF and R501, R508 make up a divided voltage network for BRIGHTNESS, C515 is used to dump noise. The operation frequency is determined by the external Resistor R505 and capacitor C512 connected to pin5 of IC501. BURST MODE dimming pulse frequency and duty is regulated by I/F board. C513 is used for soft start and compensation, C514, C508 are used for dump noise.

The output drives, include NDR4, NDRV2, PDRV3, PDRV1 (pins1, 3, 15, 16 respectively) output square pulses to drive MOSFET U501, U502, U503, U504 and each of U501, U502 U503, U504 is consist of a N channel MOSFET and a P channel MOSFET. U501 and U502, U503 and U504 work as full-bridge topology work mode, it is high efficient, zero voltage switching.

During start up, VSEN (pin9 of IC501) senses the voltage at the transformer secondary. When VSEN reaches 3.0V, the output voltage is regulated. If no current is sensed approximately 1.5 seconds IC501 shunt off.

The current flowing through CCFL is sensed and regulated through sense resistor R504, R507, R513, R519, R526 and R530. The feedback voltage through D511, D514, D515, D516, D519, D520, R514 and C522 connected to Pin11 (ISEN) of IC501, then compared with a reference voltage (1.5V) via a current amplifier, resulting in PWM drive outputs to full-bridge switches.

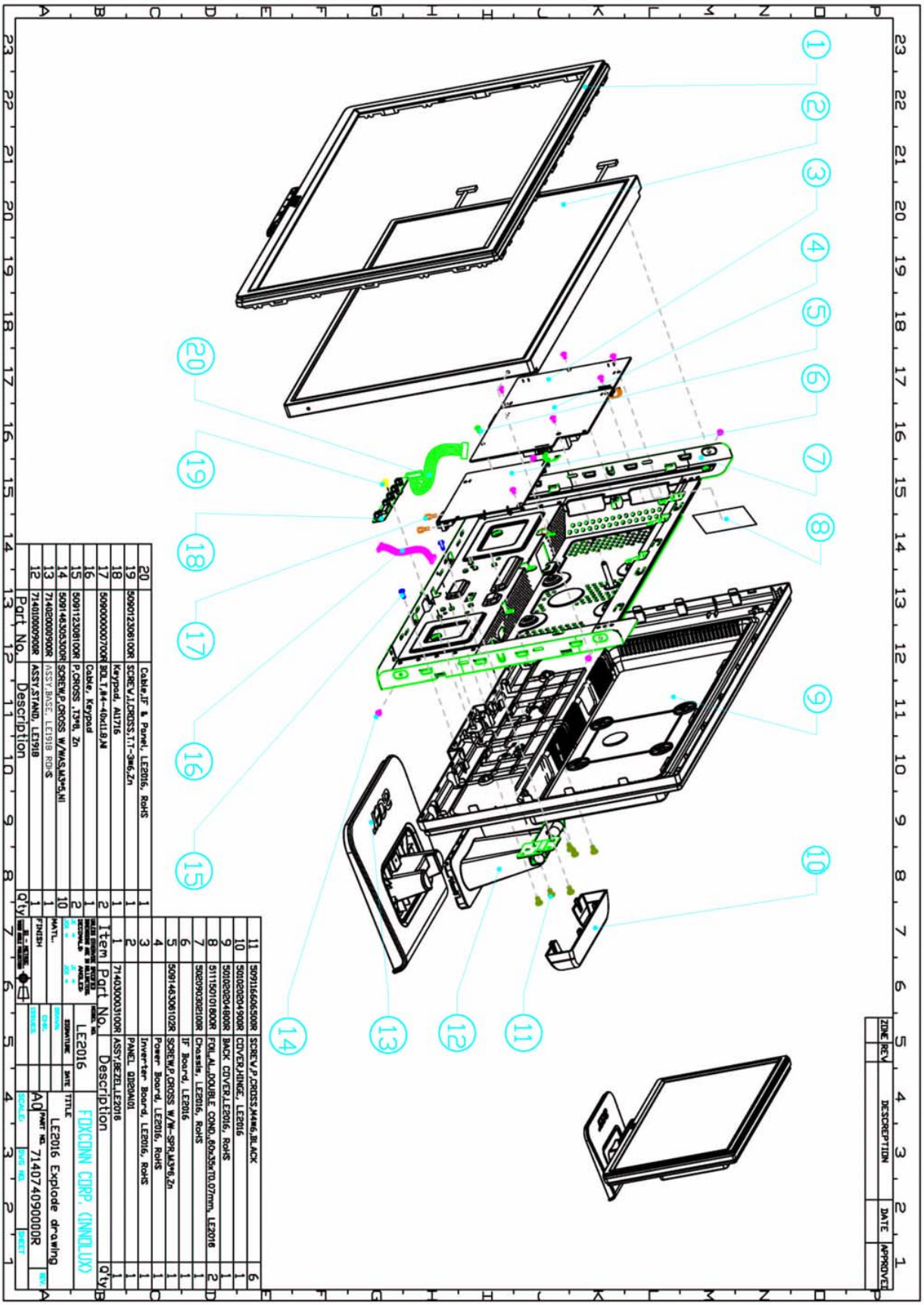
3.2 Protection circuit

Over Voltage Protection: C503, C505and C506 are connected in high voltage output connector, the divided AC voltage is inverted DC voltage through D503, R523and C533 are used to rectify wave & dump noise. Then the voltage signal reaches Pin9 VSEN of IC501, when the voltage changes, build-in PWM of IC501 will adjust output voltage.

Open Lamp Protection: In normal operation, the test points of OP1, OP2, OP3, OP4, OP5, OP6 are sensed a high level AC voltage, the AC signal, for example OP1 invert DC voltage through R531, C540, so the high level DC voltage reaches the gate pin of Q502, So the gate pin of Q501 has a low level voltage, and the IC501 is normal operation. Once one of signal OP1, OP2, OP3, OP4, OP5 and OP6 is low, the voltages of Q501 gate pin is high level, and make the voltage of ISEN low level, the IC501 will be shunt down.

Chapter 4- Disassembly & Assembly

1. Exploded Diagram



Item	Part No.	Description	q'ty
1	71403000310GR	ASSY,BEZEL,LE2016	1
2	71403000310GR	PANEL QRDAA01	1
3		Inverter Board, LE2016, RoHS	1
4		Power Board, LE2016, RoHS	1
5	50914630610ZR	SCREW,P,CROSS W/W-SPR,M3*6,Zn	1
6		IF Board, LE2016	1
7	5926903021 0GR	Chassis, LE2016, RoHS	1
8	31115010180GR	FOIL,AL,,DOUBLE COND.,60x35xT0.07mm, LE2016	2
9	50102020490GR	BACK COVER,LE2016, RoHS	1
10	50102020490GR	CDVER,HINGE, LE2016	1
11	50911660605 00R	SCREW,P,CROSS,M4#6,,BLACK	6
12	71402000090GR	ASSY,STAND, LE191B	1
13	71402000090GR	ASSY,BASE, LE191B ROHS	1
14	50914630530GR	SCREW,P,CROSS W/WASH,M3*5,NI	10
15	50911230810GR	P,CROSS ,T3*8, Zn	2
16		Cable, Keypad	1
17	50900000700GR	BOLT,#4--40xL8,NI	2
18		Keypad, AU716	1
19	50901230610GR	SCREW,I,CROSS,T.T-3#6,Zn	1
20		Cable,IF & Panel, LE2016, RoHS	1

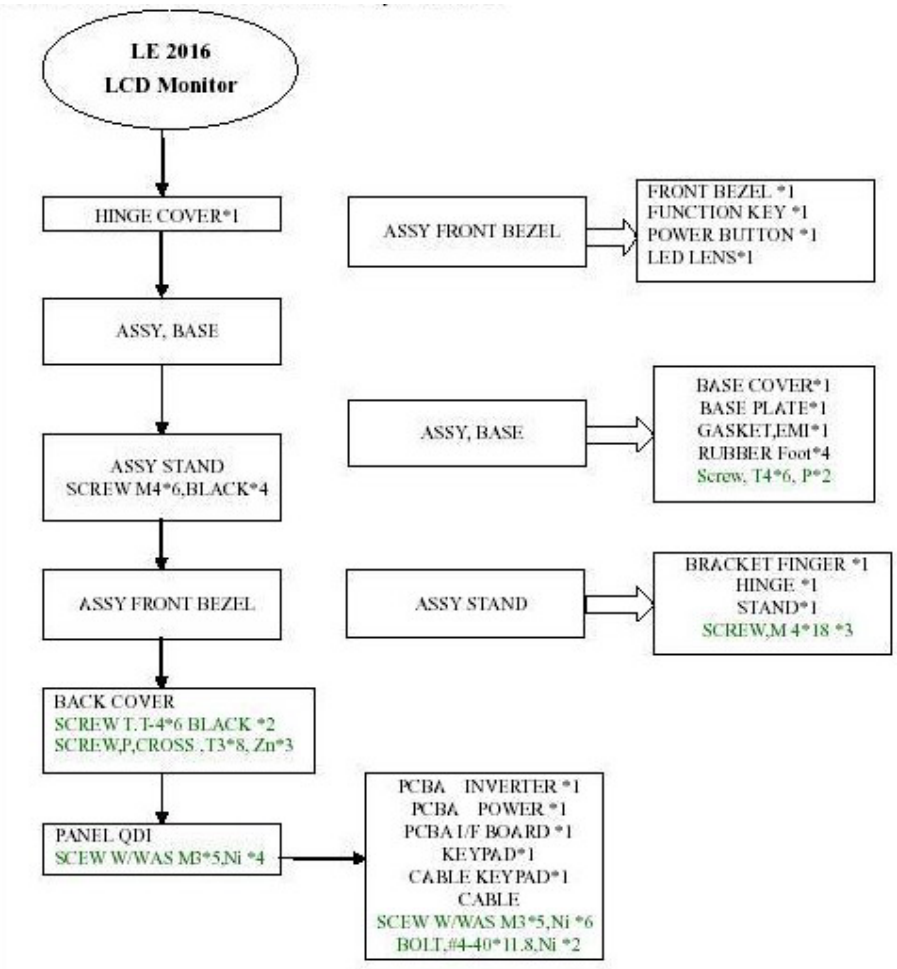
ZONE	REV.	DESCRIPTION	DATE	APPROVED

FOXCONN CORP. (INNOLUX)

LE2016 Exploded drawing

71407409000R

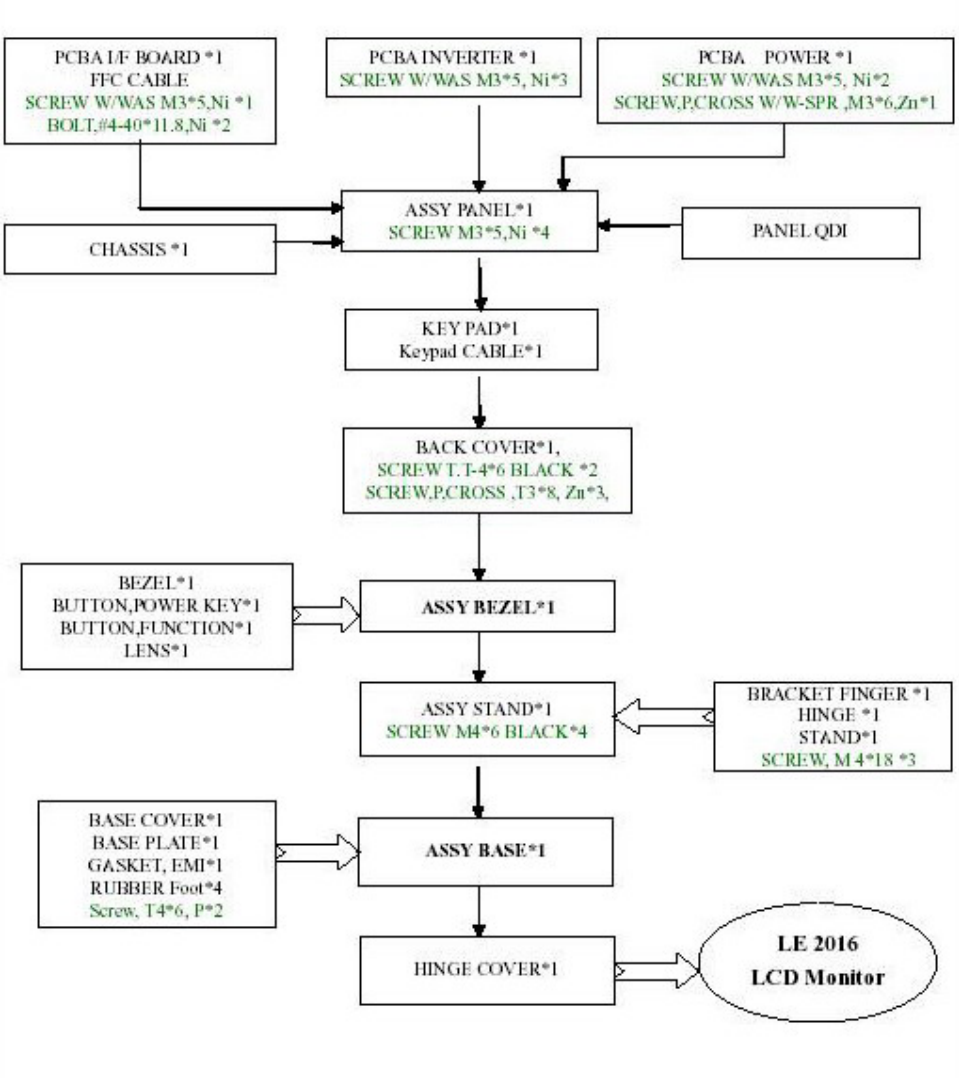
2. Disassembly Block



Note:

The DIS assembly direction please following direction of arrowhead

3. Assembly Block



Chapter 5- TEST AND ADJUSTMENT

1. GENERAL POINTS

1.1 Test Equipment or Tool

1.1.1 Test pattern generator: PC or video pattern generator (Chroma-2326/2160/2130)
1.1.2 Color analyzer: Chroma-7120
1.1.3 Power meter: AC Source Chroma-6408
1.1.4 Electrical safety tester: Chroma (Zentech) 9032A
1.1.5 Auto shock fixture
1.1.6 Temperature and humidity sensor
1.1.7 DDC interface card and EDID file

1.2 Preset Test Pattern

1.2.1 Crosshatch (General-1)
1.2.2 Gray Bar (16 & 32 levels)
1.2.3 Full White
1.2.4 Aging (Burn-in) Pattern: full Green, Blue, White, Black and Red

1.3 AC input

All measurements mentioned hereafter are carried out at a normal mains voltage (90 - 264 V_{AC} for the model with full range power supply, unless otherwise stated)

1.4 Observation Distance

1.4.1 Observation distance from eyes to panel is defined as 50cm
1.4.2 Visual distance from instrument to panel is defined as 20cm

1.5 Key Function Description

1.5.1 Control buttons on the front bezel

CONTROL KEY	KEYS FUNCTION
[AUTO]	A. When OSD un-displays, press [AUTO] to perform auto-adjustment B. When OSD displays, press [AUTO] to return to previous level menu
[MENU]	A. When OSD isn't shown on screen, press [MENU] to enter OSD interface B. When OSD displays, press [MENU] to perform function of menu icon that is highlight or enter next level menu
[►], [◄]	A. When "MENU OSD" displays, press these keys to change the contents of an adjustment item, or change an adjustment value B. When "MENU OSD" un-displays, press these keys no function
[POWER]	Power on or power off the monitor

1.5.2 Hot Key Operation

FUNCTION	HOT KEY OPERATION					DESCRIPTION
	AUTO	◄	►	MENU	POWER	
FACTORY MODE	•			•	ON	Press [AUTO] & [MENU] at the same time, and then press [POWER] for DC power on. OSD menu will be shown with "F" on the left top. Select "F" for entering factory mode.

ISP MODE		•	•		ON	Firstly enter the factory mode, then Press ◄ & ► at the same time, and then press [POWER] for DC power on.

1.6 Burn-in (Aging) Pattern

1.6.1 Burn-in patterns are: full Green, Blue, White, Black and Red
1.6.2 It will enter burn-in mode (aging mode) on condition that Power on and in the factory mode Without VGA ,
1.6.3 Exit burn-in mode by plug in the VGA cable, then power on.

1.7 Warm Up

All test units have to be done warm up after at least 2 hours in a room with temperature of 40±5°C. (Except particular requirement)

2. INPUT SIGNAL

2.1 Video Signal Input

2.1.1 a. VESA Analog
The video input consists of red, green, and blue signals. The video signals are analog levels, where 0V corresponds to black and 700mV is the maximum signal amplitude. Input impedance of video pins is 75 ohm ±1%.
Sync signal input
The capability of sync signal inputs shall include separate sync. Input impedance: 10K ohms the signals are defined as follow:
Separate sync TTL level, Positive/Negative
Composite sync
Sync on Green
b. Digital signal (Option)
Standard DVI

2.1.2 Input signal mode

PRESET TEST MODE TIMING

VESA MODES							
Mode	Resolution	Total	Horizontal		Vertical		Nominal Pixel Clock (MHz)
			Nominal Frequency +/-0.5KHz	Sync Polarity	Nominal Frequency +/-1Hz	Sync Polarity	
VGA	640*480@60Hz	800*525	31.469	N	59.941	N	25.175
	640*480@72Hz	832*520	37.861	N	72.809	N	31.500
	640*480@75Hz	840*500	37.500	N	75.000	N	31.500
	640*480@85Hz	832*509	43.269	N	85.008	N	36.000
SVGA	800*600@56Hz	1024*625	35.156	P	56.250	P	36.000
	800*600@60Hz	1056*628	37.879	P	60.317	P	40.000
	800*600@72Hz	1040*666	48.077	P	72.188	P	50.000
	800*600@75Hz	1056*625	46.875	P	75.000	P	49.500
	800*600@85Hz	1048*631	53.674	P	85.061	P	56.250
XGA	1024*768@60Hz	1344*806	48.363	N	60.004	N	65.000
	1024*768@70Hz	1328*806	56.476	N	70.069	N	75.000
	1024*768@75Hz	1312*800	60.023	P	75.029	P	78.750
	1024*768@85Hz	1376*808	68.677	P	84.997	P	94.500
	1152*864@75Hz	1600*900	67.500	P	75.000	P	108.000

	1280*960@60Hz	1800*1000	60.000	P	60.000	P	108.000
	1152*720@60Hz	1488*748	44.859	N	59.972	P	66.750
SXGA	1280*1024@60Hz	1688*1066	63.981	P	60.020	P	108.000
	1280*1024@75Hz	1688*1066	79.976	P	75.025	P	135.000
UXGA	1600*1200@60Hz	2160*1250	75.000	P	60.000	P	162.000
WSXGA+	1680*1050@60Hz	2240*1089	65.290	N	59.954	N	146.250
	1680*1050@75Hz	2272*1099	82.306	N	74.892	N	187.000
IBM MODES							
EGA	640*350@70Hz	800*449	31.469	P	70.087	N	25.175
	720x400@70Hz	900*449	31.469	N	70.087	P	28.322
MAC MODES							
VGA	640*480@66.7Hz	864*525	35.000	P	66.667	P	30.240
SVGA	832*624@75Hz	1152*667	49.725	N	74.550	N	57.283
XGA	1024*768@75Hz	1328*804	60.241	N	74.927	N	80.000
	1152*870@75Hz	1456*915	68.681	N	75.062	N	100.00
Other MODES							
XGA	1024*768@72Hz	1360*800	57.669	N	72.086	N	78.434
SXGA	1280*1024@70Hz	1696*1072	74.882	P	69.853	P	127.000

Note: DVI do not support timing 1680x1050@75Hz if DVI is built.

2.1.3 Signal cable

a. 15 pin D-sub VGA cable male

b. Single link 18+1 pin DVI-D male (Option)

2.1.4 Interface

Analog signal: The input signals are applied to display through D-sub or DVI cable.

Length: 1.8 m +/- 50 mm (fixed)

Connector type: a. D-sub male,

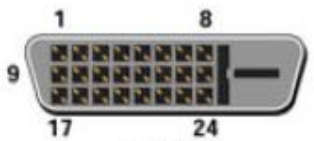
b. Single link DVI-D connector male (Option).

With DDC_2B pin assignments.

D-Sub Pin Assignment:

PIN No.	SIGNAL	PIN No.	SIGNAL
1	Red video input	9	VGA +5V
2	Green video input	10	GND
3	Blue video input	11	GND
4	GND	12	Serial data line (SDA)
5	Cable detect	13	H. Sync / H+V
6	Red video GND	14	V. Sync
7	Green video GND	15	Data clock line (SCL)
8	Blue video GND		

DVI-D Pin Assignment:



DVI-D
Receptacle Connector

Digital-Only Connector Pin Assignments					
Pin	**Signal Assignment**	**Pin**	**Signal Assignment**	**Pin**	**Signal Assignment**
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2/4 Shield	11	T.M.D.S. Data1/3 Shield	19	T.M.D.S. Data0/5 Shield
4	No Connect	12	No Connect	20	No Connect
5	No Connect	13	No Connect	21	No Connect
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (for +5V)	23	T.M.D.S. Clock+
8	No Connect	16	Hot Plug Detect	24	T.M.D.S. Clock-

3. FUNCTION CHECK

3.1 OSD Function Test

3.1.1 Test mode: 1680x1050 @ 60 Hz

3.1.2 Test pattern: pattern #1 of crosshatch (GENERAL-1)

3.1.3 Check single key function and hot key function about key “Power”, “Menu”,” ►”, “◄ “, “Exit/Auto”, it should operate normally

3.2 Screen Picture Check

3.2.1 Test mode: 1680x1050 @ 60 Hz

3.2.2 Test pattern: pattern #1 of crosshatch (GENERAL-1)

3.2.3 Select OSD menu to execute ‘Auto’ function, screen picture shouldn’t appear abnormal phenomenon and picture on screen should fit in with active display screen.

3.3 Auto Color Balance

3.3.1 Test mode: 800x600 @ 60 Hz

3.3.2 Test pattern: pattern #48 of 32 gray levels (32 GRAYS)

3.3.3 Enter "Factory Mode" pressing "Auto color" key, and execute "AUTO".

3.4 Timing Check

3.4.1 Test mode: Refer to preset timing table and power saving mode

3.4.2 Test pattern: pattern #1 of crosshatch (GENERAL-1)

3.4.3 After change above timing and execute “Auto” function automatically, picture should fit in with active display screen.

3.4.4 Under power saving mode, LED lamp on the key board should be orange

3.5 Power Consumption Function Test

3.5.1 Test mode: 1680x1050 @ 60 Hz

3.5.2 Test pattern: pattern #41 of “WHITE”

3.5.3 Adjusting both brightness value to maximum,

3.5.4 Measure power consumption as the following

Status	Power Consumption	LED Display
Normal	≤ 55W	Green
Standby (No H/V sync)	< 1W	Orange
Power off	< 1W	No display

3.6 VGA Cable Detect Test

If VGA cable of LCD monitor isn't connected to video pattern generator or PC, "NO SIGNAL" should be shown on screen.

3.7 Hi-Pot test

Test condition:

a. high voltage 2.3KV(DC)
b. leakage current 10mA
c. rising time 1 sec.
d. test time 3 sec.

3.8 Grounding Test

Test condition:

a. test current 30A / 2 sec
b. impedance < 0.1Ω

3.9 Bumping Test

3.9.1 Test mode: 1680x1050 @ 60 Hz;

3.9.2 Test pattern: pattern #1 of crosshatch (GENERAL-1)

3.9.3 To shock LCD monitor lightly at the center of rear cover and edges with 1~2kg/cm2 force for three times, no abnormal phenomenon is found on panel screen.

4. DISPLAY CHECK

4.1 Panel Flicker Check

Connect LCD monitor to PC, set LCD monitor to be timing of 1680x1050 @ 60 Hz, adjust brightness to be default value (brightness at maximum), execute "Auto" function, and then check picture of shut down under windows 98 operating system, or flicker-pattern of pixel on-off. It should be that no flicker be found on panel screen.

4.2 Panel Defect Inspection

This item should follow IIS

4.2.1 Test mode: 1680 x 1050@60Hz

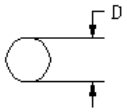
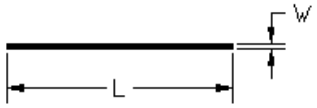
4.2.2 Test pattern: Crosshatch/Full white/Red/Green/Blue/Black/16 color bar/64 gray bars

4.2.3 Display quality must be (according to DIN 13406-2 pixel fault class II)

Defect Type	Specification	Major	Minor
Bright dot defect	≤ 3pcs		•
Dark dot defect	≤ 4pcs		•
Total bright and dark dots	≤ 5pcs		•
Bright Dots – 2 Adjacent B	N ≤ 1 pair		•
Bright Dots – 3 or more Adjacent	N ≤ 0 pair		•
Black Dots – 2 Adjacent B	N ≤ 1 pair		•
Black Dots – 3 or more Adjacent	N ≤ 0 pair		•
Distance between defect dots	L ≥ 15 mm		•
Distance between Dark dots	L ≥ 15 mm		•

Note 1: Dot defect is defined as the defective area is not larger than 50% of the dot area. Bright Dot is defined 5% transmission ND filter.

Note 2: Light Leakage: There shall not be visible light around the customer's bezel after assembly in normal View angle.

Defect Type		Specification Size	Count (N)	Majo	Minor
Dot Shape(Particle、Scratch and Bubbles in Display area or on The Polarizer) 		Black spots which appear when B/L operating 0.15mm ≤ D ≤ 0. 5 mm	N ≤ 3		●
Line Shape (Particles、Scratch、Fiber and Bubbles in display area or on The Polarizer) 		L ≤ 0.5mm and W ≤ 0.05 mm	Ignored		●
		0.5mm < L ≤ 5mm and 0.05mm < W ≤ 0.1mm	N ≤4		
		L > 5mm or W > 0.1mm	N = 0		
Display non-uniformity		There should be non-uniformity through 5% transparency of filter or judge by limit sample if necessary.			●
Bezel	Scratch	No harm			●
	Dirt				●
	Wrap	No harm			●
	Sunken	No harm			●
Label	No label	No			●
	Invert label				●
	Broken				●
	Dirt	Word can be read.			●
	Not clear				●
	Word out of				●
	Mistake	No			●
	Position	Be attached on right position			●
Screw	Not enough	No			●
	Limp	No			●
Connecto	Connection	No bend on pins and damage			●
FPC/FFC	Broken	No			●

5. PICTURE CHECK

5.1 Check brightness uniformity

5.1.1 Test mode: 1680x1050 @ 60 Hz

5.1.2 Test pattern: pattern #41 of "WHITE"

5.1.3 Test tool: Color Analyzer Chroma7120

5.1.4 Set brightness and contrast to be maximum, apply pattern as Fig.3, it should be the following requirement:

$$\frac{\text{Min. luminance of nine points (backlight)}}{\text{Max. luminance of nine points (backlight)}} \geq 75\%$$

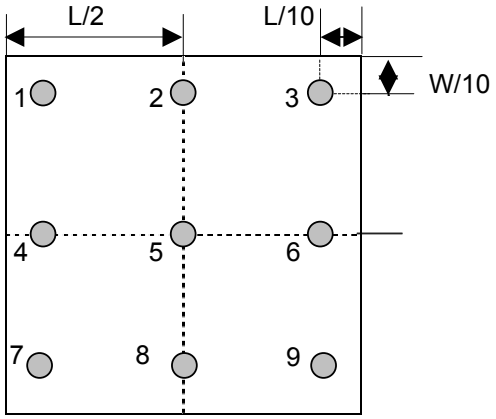


Fig. 3

5.2 Color Temperature Check

5.2.1 Test mode: 1680x1050 @ 60 Hz
5.2.2 Test pattern: pattern #41 of "WHITE"
5.2.3 Test tool: Color Analyzer Chroma7120
5.2.4 Set brightness to be maximum and contrast to be 50%, measure color coordinate and luminance by color analyzer as the following:

Mode	Chromaticity Coordinate		
	x	y	Y
9300K	0.283 ± 0.030	0.298 ± 0.030	180
USER	Default	Default	240
6500K	0.313 ± 0.030	0.329 ± 0.030	240

5.3 Brightness Out (Video signal input 700mV ± 2%)

5.3.1 Test mode: 1680x1050 @ 60 Hz
5.3.2 Test pattern: pattern #41 of "WHITE"
5.3.3 Test tool: Color Analyzer Chroma7120
Set brightness and contrast to be maximum with white pattern, to measure the screen center, the light output shall be BL >= 240cd/m^2

5.4 DDC Data Check

5.4.1 EDID program
5.4.2 Execute main program for EDID writing (refer to model type), using scanner for barcode download.
5.4.3 If writing EEPROM is successful, and then shows text "PASS" on screen; if writing EEPROM is failure, then shows text "FAIL".
5.4.4 EDID data: (For example)

For QD20AL0101 Panel VGA EDID table:

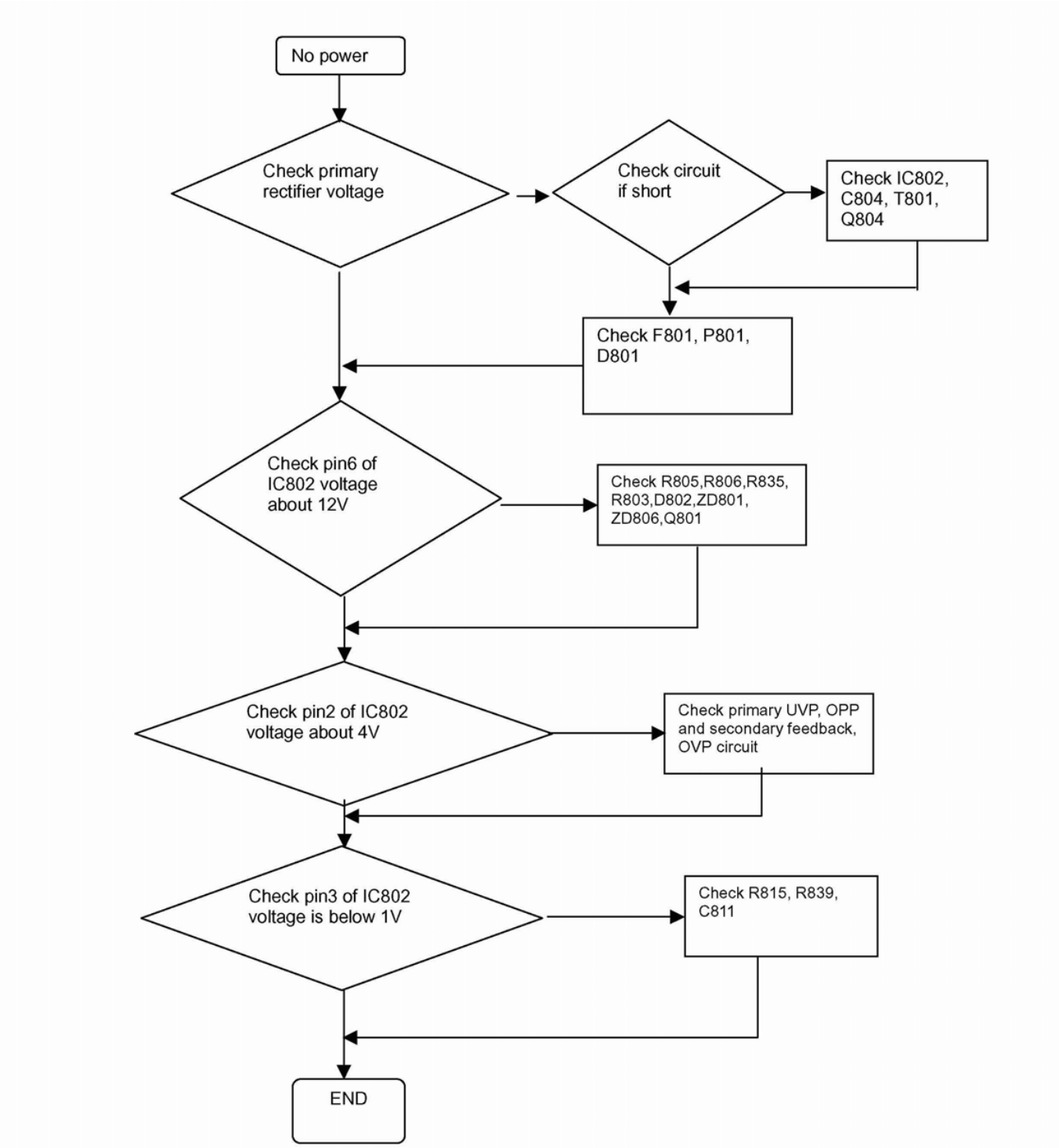
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	64	AD	00	00	00	00
1	01	0F	01	03	08	2B	1B	78	EA	C3	15	A6	56	4A	9B	24
2	16	50	54	BF	EF	80	A9	40	01	01	01	01	01	01	01	01
3	01	01	01	01	01	01	08	39	90	30	62	1A	27	40	68	B0
4	36	00	B1	0F	11	00	00	1E	00	00	00	FD	00	38	56	1F
5	54	13	00	0A	20	20	20	20	20	20	00	00	00	FF	00	30
6	30	30	30	30	30	30	30	30	30	30	30	0A	00	00	00	FC
7	00	41	4C	32	30	31	36	57	0A	20	20	20	20	20	00	CS

For QD20AL0101 Panel DVI EDID table:

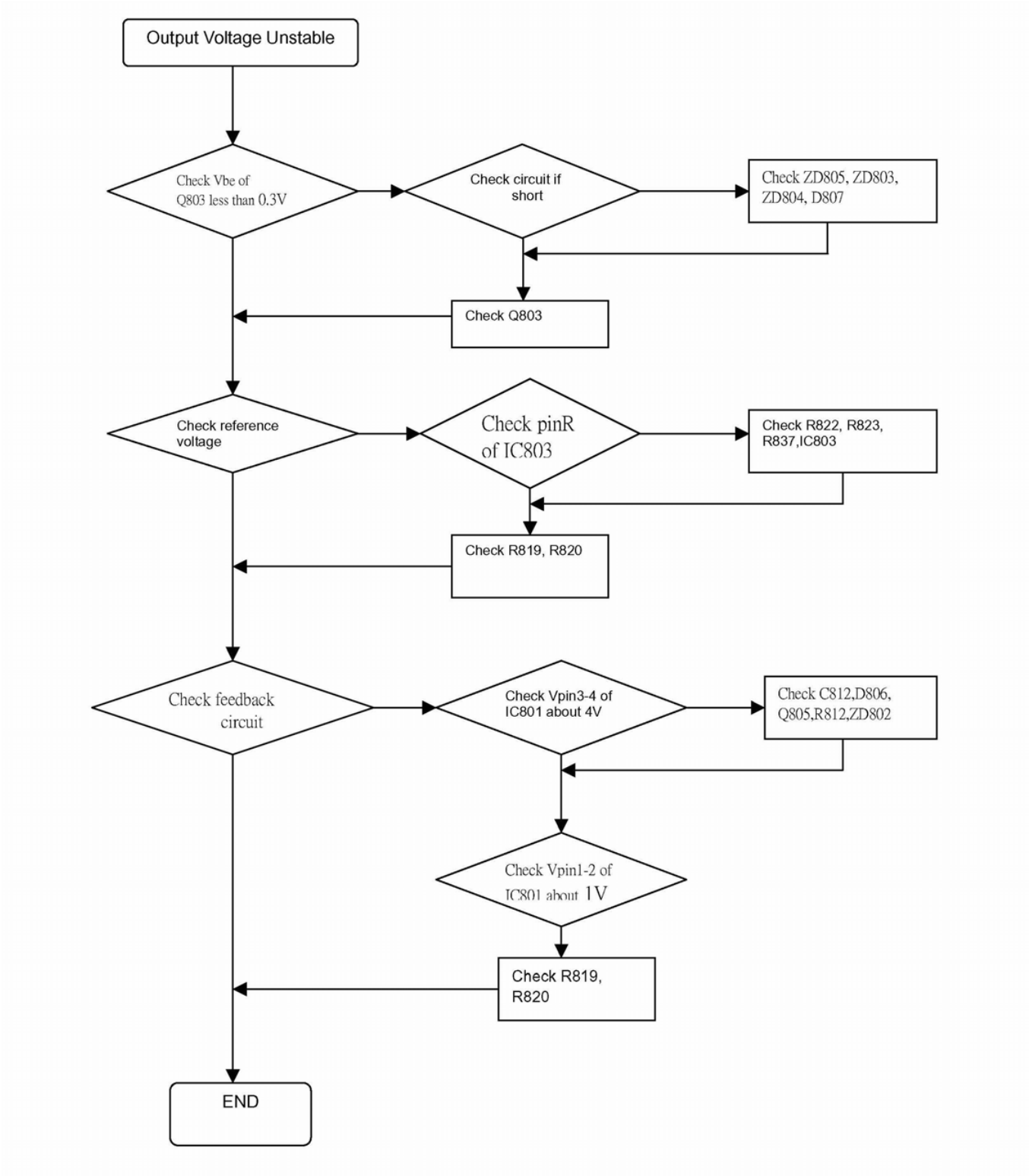
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	FF	FF	FF	FF	FF	FF	00	04	72	64	AD	00	00	00	00
1	01	0F	01	03	80	2B	1B	78	EA	C3	15	A6	56	4A	9B	24
2	16	50	54	BF	EF	80	A9	40	01	01	01	01	01	01	01	01
3	01	01	01	01	01	01	08	39	90	30	62	1A	27	40	68	B0
4	36	00	B1	0F	11	00	00	1E	00	00	00	FD	00	38	56	1F
5	54	13	00	0A	20	20	20	20	20	20	00	00	00	FF	00	30
6	30	30	30	30	30	30	30	30	30	30	30	0A	00	00	00	FC
7	00	41	4C	32	30	31	36	57	0A	20	20	20	20	20	00	CS

Chapter 6- TROUBLE SHOOTING

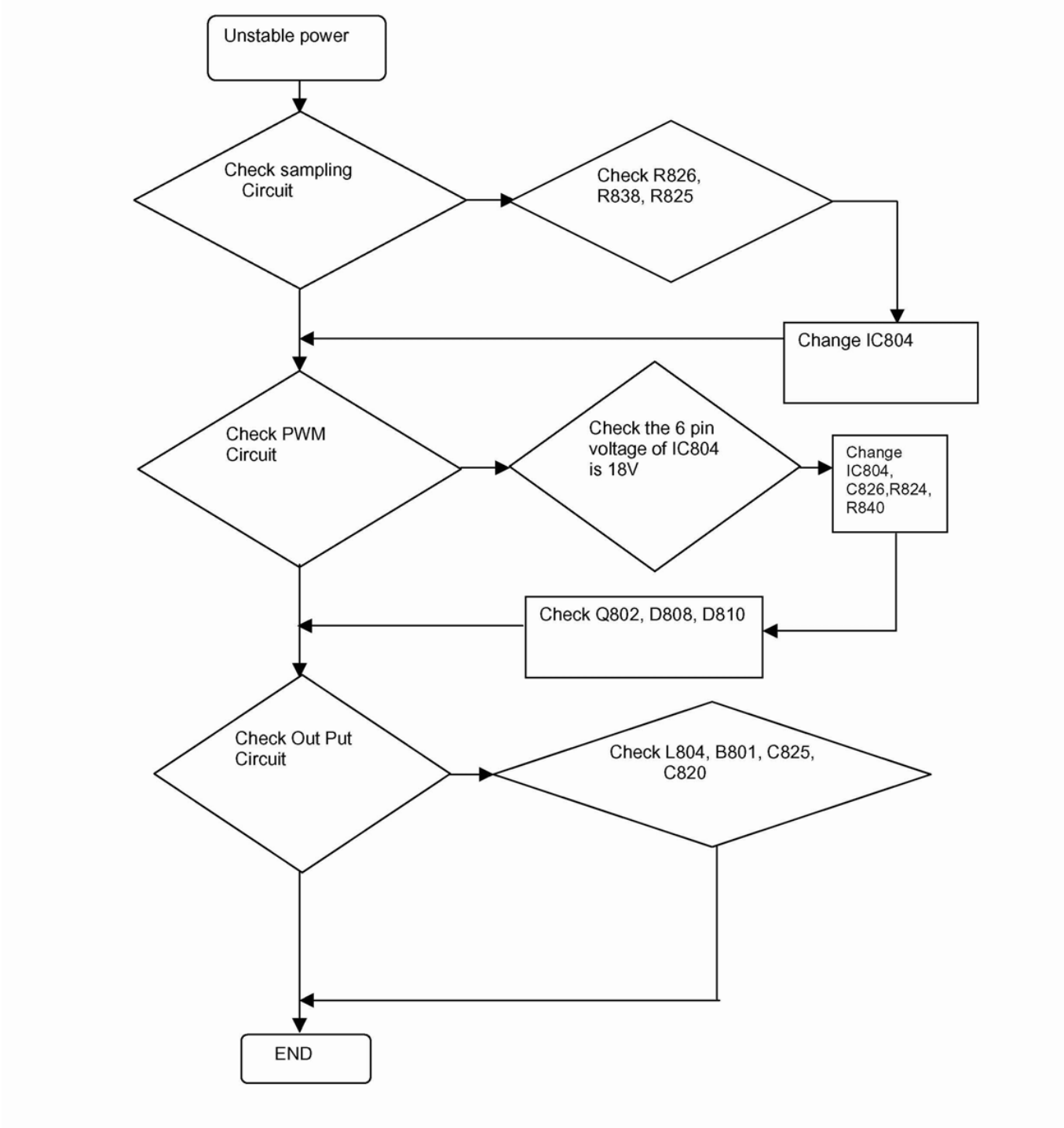
1. No Power & LED Off



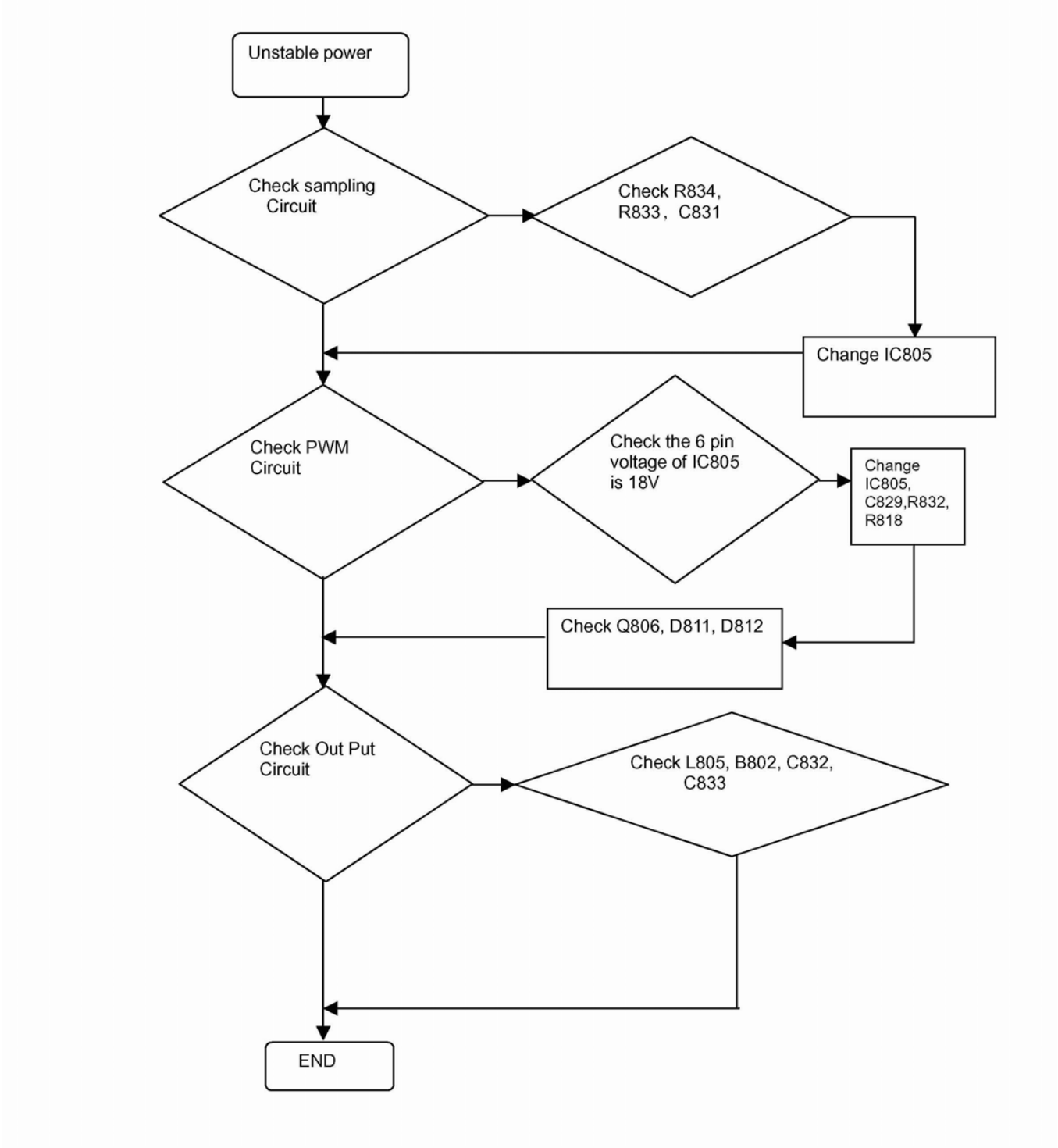
2. 18VDC output voltage is unstable



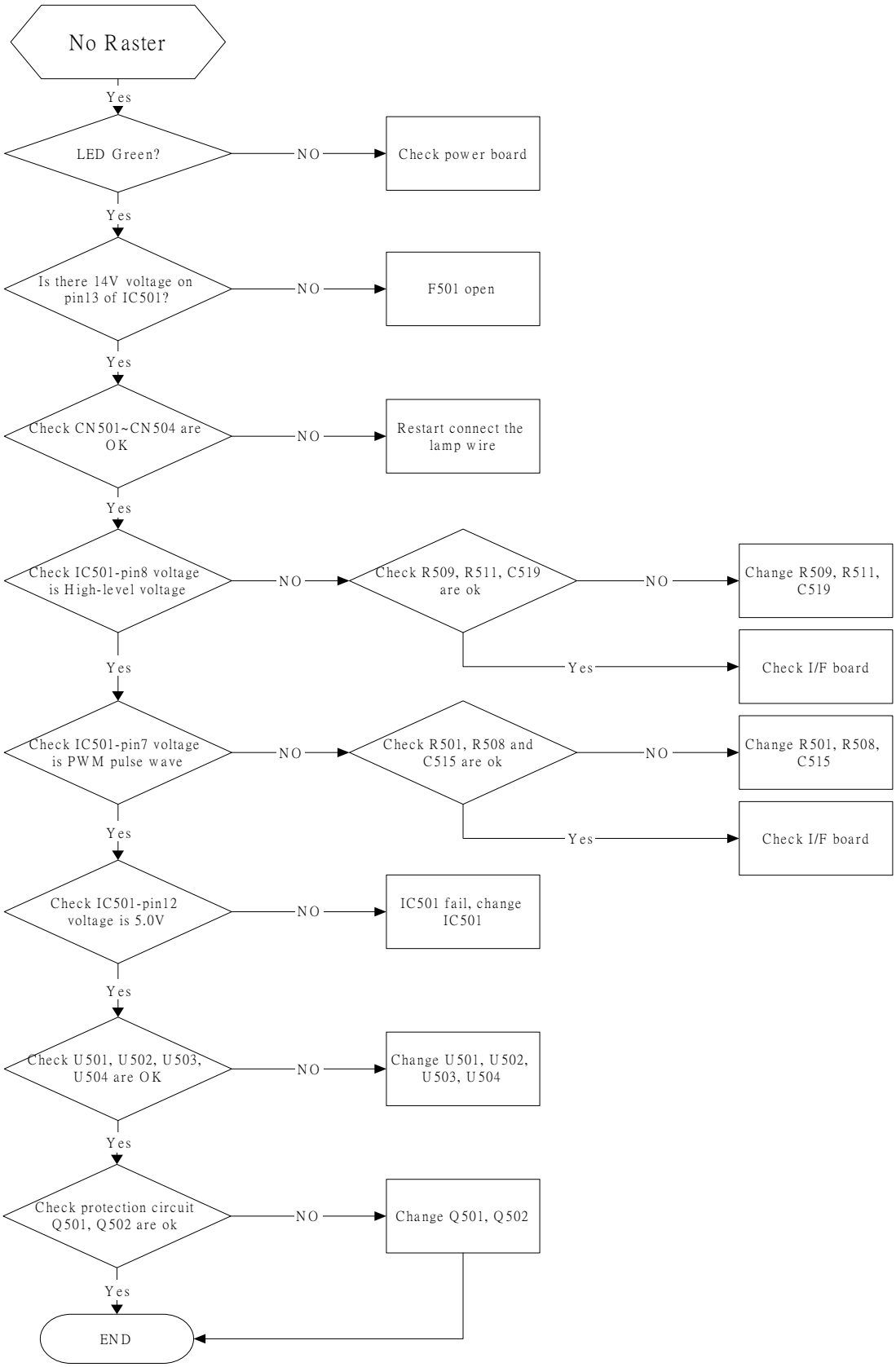
3. 5VDC Output power is unstable



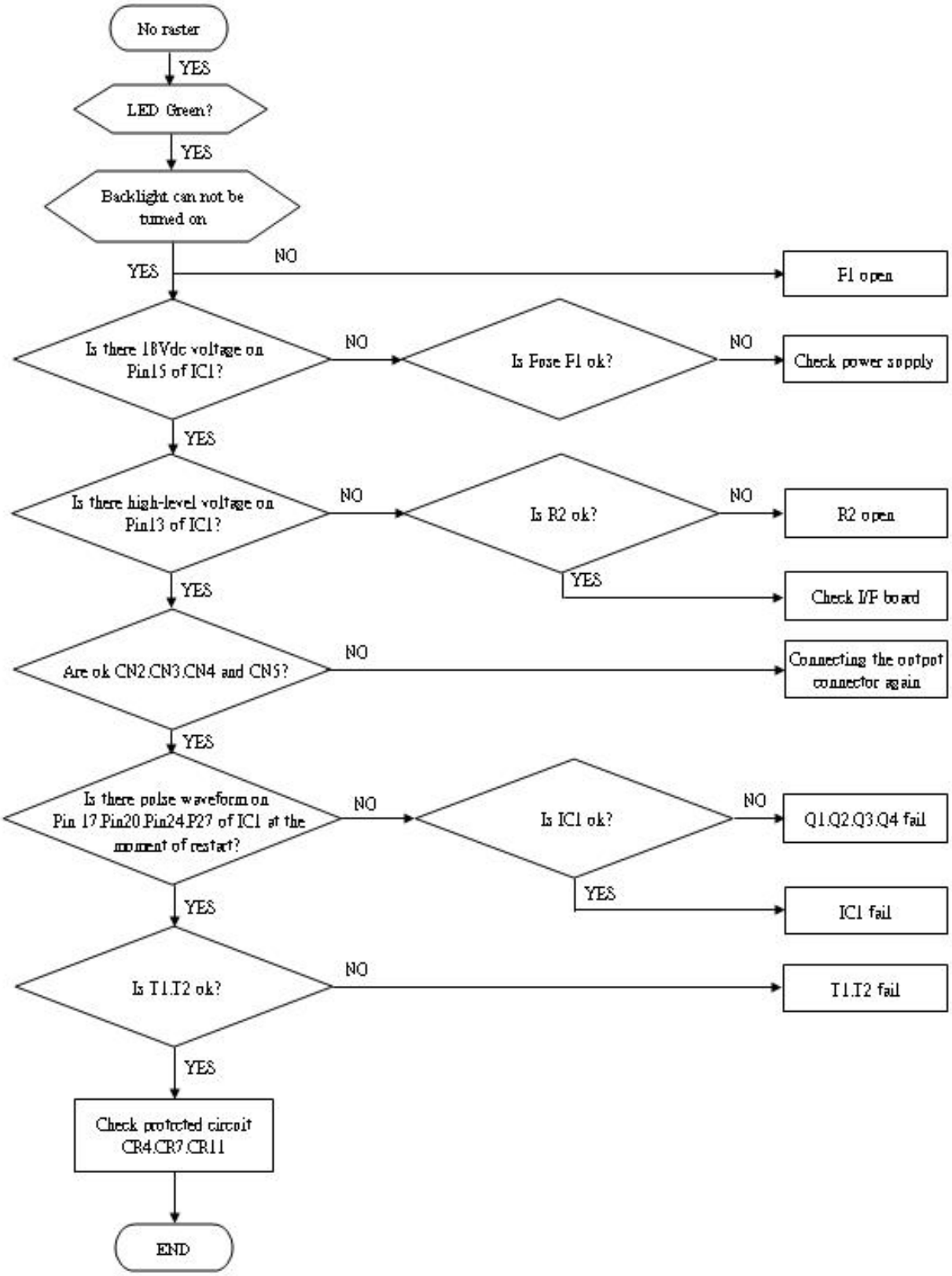
4. 5VDC Output power is unstable



5. AL2016W backlight can't be turned on(INL inverter)



6. Troubleshooting List-TDK inverter



Attachment 1- Bill of Material

PCBA Power Board

ITEM	P/N	DESCRIPTION	qty	LOCATION
1	430300800410R	HRN ASS'Y 8P 60mm UL1007#24,	1	CN801
2	412140002380R	IC LTV817M-PR VDE (LITE-ON)P=10mm	1	IC801
2.1	412140001390R	IC EL817M-B ROHS (EVERLIGHT	1	
3	411050005020R	DIO BRDG BL4-06-BF52-LF	1	D801
		600V/4A FRONTIER ROHS		
4	416194743011R	CAP MEX 0.47uF 275V K X2,F15	1	C803
5	416202224610R	CAP MEY 2200pF 400V M Y,F10mm	1	C813
6	416202223610R	CAP MEY 2200pF 250V M Y2 Y5V P=7.5mm	2	C801,C802
7	420421020211R	CAP SD 1000uF 25V M,105℃ F13x20	2	C815,C816
8	420431514280R	CAP SEK 150uF/420V M,105℃ CF18x40	1	C804
9	425000010530R	COIL CHK 5uH 7.8X10 CHK-053 0	2	L802,L803
		181085R0L-LFR ROHS		
10	425000010680R	COIL CHK 110uH T50-26B CHK-068	2	L804,L805
		ROHS,BC1306IR-111K-J		
11	425000010670R	COIL CHK 20mH UU16 CHK-067,ROHS	1	L801
		UF2324S4-203Y1R0-X02		
12	426000090560R	XFMR SW 360uH HE-4 SPW-056,DIP	1	T801
13	432009400701R	NTC 5Ω 4A 10ψ P=5mm, F ROHS	1	RT801
14	430613420290R	FUSE SLOW 2,250,Axial Lead,3.6x10mm	1	F801
15	440149000190R	SKT AC 10A/250V U/C/V G/Y=65mm	1	P801
		TU-301-SP-SR7-AC3+019		
16	415350104551R	RES MOF 2W 100KΩ J,MINI,HK17.5	1	R813
17	511110000101R	HOT-MELT ADHESIVES (#526)	0.003	
18	418247233020R	CAP CD X7R 4700pF 1KV K,W/O FORMING,	1	C806
19	415350308551R	RES MOF 2W 0.3Ω J,MINI,HK17.5	1	R815
20	430300600080R	HRN ASS'Y 6P 30mm UL1007#24,	1	CN802
21	416204724610R	CAP MEY 4700pF 400V M Y,F10mm	1	C835
22	735100006500R	ASSY,H/S,UFF80-015, LE2016	1	
23	411020065020R	DIO UFF80-015CT-LF 150V/8A,	1	D807
		ITO-220AC(FRONTIER)ROHS		
24	507200003800R	HEATSINK,56x20xt10mmLE1904/05	1	
25	509112306100R	SCREW,P,CROSS,T.T-3*6,Zn	1	
26	735100006510R	ASSY,H/S,AP2761I-A,LE2016	1	
27	410500059290R	XSTR AP2761I-A N-CH TO-220CFM	1	Q804
		ADVANCED POWER ROHS		
27.1	410050061130R	XSTR SPA07N65C3 N-CH PG-TO220-	1	
		3-31(INFINEON)ROHS		
28	507200003700R	HEATSINK,46x20xt10mmLE1704/05	1	H801
29	509112306100R	SCREW,P,CROSS,T.T-3*6,Zn	1	
30	790450540900R	PCBA,POWER BOARD,SMD, LE2016	1	
31	410500045210R	XSTR PMBT3904 NPN 200MA,40V	2	Q803,Q805

		SOT23(PHILIPS) ROHS		
31.1	410500045130R	XSTR MMBT3904 NPN SOT-23(INFINEON)	2	
31.2	410500045140R	XSTR MMBT3904LT1G NPN 200MA	2	
		40V SOT23 ROHS (ON)		
32	411150356950R	ZENER 5.6V MTZS05-5.6-G,ROHS	1	ZD804
		SOD-123 (MMC)		
32.1	411100656951R	ZENER 5.6V ZMM5232B-LF DO213AA	1	
		(FRONTIER)ROHS		
32.2	411101156920R	ZENER BZV55-B5V6 SOD80C,ROHS(PHILIPS)	1	
33	411101139950R	ZENER BZV55-C3V9 SOD80C(PHILIPS)	1	ZD805
33.1	411150339950R	ZENER 3.9V MTZS05-3.9-G,SOD-123(MMC)	1	
33.2	411100639950R	ZENER 3.9V ZMM55-C3V9-LF DO-213AA(FEC)	1	
34	411150312050R	ZENER 12V MTZS05-12-G,SOD-123(MMC)	1	ZD806
34.1	411154012050R	ZENER 12V ZMM55-C12-LF SMD(FEC	1	
		DO-213AA ROHS		
34.2	411101112050R	ZENER BZV55-C12 SOD80C(PHILIPS	1	
35	411150315050R	ZENER 15V MTZS05-15-G,SOD-123(MMC)	1	ZD802
35.1	411101115020R	ZENER BZV55-B15 SOD80C(PHILIPS	1	
35.2	411100615051R	ZENER 15V ZMM5245B-LF DO-213AA(FEC)	1	
36	411101120050R	ZENER BZV55-C20 SOD80C(PHILIPS	1	ZD803
36.1	411150320050R	ZENER 20V MTZS05-20-G SOD-123(MITSUBISHI)	1	
36.2	411100620050R	ZENER 20V ZMM55-C20-LF DO-213AA(FRONTIER)	1	
37	411150339050R	ZENER 39V MTZS05-39-G,SOD-123(MMC)	1	ZD801
37.1	411100539050R	ZENER MMSZ39T1G SOD-123(ON)	1	
37.2	411101139050R	ZENER BZV55-C39 SOD80C(PHILIPS	1	
38	412000412840R	IC NCP1203D60R2G SO-8(ON)ROHS	1	IC802
39	414908010350R	RES SMD (0805) 10KΩ J,RT ROHS	2	R804,R811
40	414908010250R	RES SMD (0805) 1KΩ J,RT ROHS	7	R812,R820,R821,R827,R830,R839,R828
41	414908068450R	RES SMD (0805) 680KΩ J,RT	6	R805,R806,R807,R808,R836,R835
42	414916200210R	RES SMD (0603) 20KΩ F,RT	1	R823
43	414908330110R	RES SMD (0805) 3.3KΩ F,RT	1	R822
44	414916120110R	RES SMD (0603) 1.2KΩ F,RT	2	R825,R833
45	414904010050R	RES SMD (1206) 10Ω J,RT ROHS	1	R816
46	414916020210R	RES SMD (0603) 2KΩ F,RT ROHS	1	R834
47	414916750110R	RES SMD (0603) 7.5KΩ F,RT	2	R826,R838
48	414904010550R	RES SMD (1206) 1MΩ J,RT ROHS	2	R801,R802
49	414908510010R	RES SMD (0805) 510Ω F,RT,ROHS	1	R837
50	419311040070R	C SMD(0805) X7R 0.1uF/50V K	2	C810,C834
51	419311030060R	C SMD(0603) X7R 0.01uF/50V K	2	C822,C831
52	419301010560R	C SMD(0603) NPO 100PF/50V J	1	C826
53	419311030070R	C SMD(0805) X7R 0.01uF/50V K	1	C812
54	419311040060R	C SMD(0603) X7R 0.1uF/50V K	4	C819,C824,C828,C830
55	419302210360R	C SMD(0603) NPO 220PF/50V G	1	C811
56	419341064650R	C SMD(1206) Y5V 10uF/16V Z	1	C805
57	412000429840R	IC MC33063ADR2G SOIC8(ON)ROHS	2	IC804,IC805

58	411090020410R	SCHTKY SKS20-04AT-G 40V/2ATHIN SMA (MMC)	4	D808,D810,D811,D812
59	410500060290R	XSTR AP9435GH P-CH TO-252 ROHS	2	Q802,Q806
		ADVANCED POWER		
60	414908022250R	RES SMD (0805) 2.2KΩ J,RT	1	R829
61	419303300560R	C SMD(0603) NPO 33PF/50V J	1	C829
62	790450510900R	PCBA,POWER BOARD,AI, LE2016	1	
63	790450550900R	PCBA,POWER BOARD,AI/A, LE2016	1	
64	415130680540R	RES CF 1/2W 68Ω J,AT ROHS	1	R814
65	415340228540R	RES MOF 1W 0.22Ω J,AT MINI	1	R831
66	415130102540R	RES CF 1/2W 1KΩ J,AT ROHS	1	R819
67	415130183540R	RES CF 1/2W 18KΩ J,AT,ROHS	1	R803
68	415320100540R	RES MOF 1/4W 10Ω J,AT MINI	1	R809
69	415320471540R	RES MOF 1/4W 470Ω J,AT,ROHS	1	R810
70	415340151540R	RES MOF 1W 150Ω J,AT MINI	4	R824,R832,R818,R840
71	411020052020R	DIO A02-LF 200V/1A R1 (FEC)	1	D805
71.1	411030003040R	DIO FR103 200V/1A DO-41(MOSPEC	1	
72	411022003210R	DIO 1N4148 75V/0.2A AT (PHIL)	4	D814,D813,D803,D806
72.1	411022003020R	DIO 1N4148-LF 75V/0.15A AT(FEC)	4	
73	411020055330R	DIO MUR1100ERL AXIAL LEAD(ON)	1	D804
73.1	411032006020R	DIO FR10-10-LF 1000V/1A AT(FRONTER)	1	
74	411020063240R	DIO 1N4007 1000V/1A DO-41(FAIRCHILD)	1	D802
74.1	411020063020R	DIO 1N4007-LF 1000V/1A DO-41(FRONTIER)	1	
75	430405007590R	JMPR 7.5mm D=0.6mm,AT ROHS	6	J801,J802,J803,J804,J809,J811
76	430405010090R	JMPR 10mm D=0.6mm,AT ROHS	8	J806,J807,J808,J810,J812,J813,J814,J815
77	506140005700R	LABEL,BARCODE,BLANK,33x7mm,	1	
		ROHS,FOR PCB		
78	490450500100R	PCB,POWER, LE2016 ROHS	1	PCB
79	430405012590R	JMPR 12.5mm D=0.6mm,AT ROHS	1	J805
80	432002200160R	BEAD CORE BF30TA-3.5x9x0.8AT	2	B801,B802
81	415340158540R	RES MOF 1W 0.15Ω J,AT MINI	1	R817
82	790450560900R	PCBA,POWER BOARD,AI/R, LE2016	1	
83	418147038530R	CAP CD NPO 47pF 1KV J,VT ROHS	1	C823
84	418210227030R	CAP CD X7R 1000pF 500V K VT	1	C814
85	418310413630R	CAP CD Y5V 0.1uF 50V Z,VT	1	C809
86	420434700230R	CAP EC 47uF 25V M,105℃ VT5x11	3	C807,C820,C833
87	416231041530R	CAP MEB 0.1uF 100V J,(RSB),VT	1	C821
		RSBEC3100DQJ ROHS		
88	418210233030R	CAP CD X7R 1000pF/1KV K,VT	1	C808
		2X7R102K102K56 ROHS		
89	420424710260R	CAP SD 470uF/25V M 105℃ ST10x16	3	C817,C818,C827
90	420424710130R	CAP SD 470uF/10V M,105℃ 8x12	2	C825,C832
91	412022002840R	IC TLV431ALP TO-92 1%,VT (ON)	1	IC803
91.1	412022002240R	IC KA431AZ 1%,VT (FAIRCHILD)	1	
91.2	412022002300R	IC AP431VL TO-92 1% VT (ATC)	1	
92	410072013370R	XSTR 2SC1815-GR (T2SPF.T) VT(TOSHIBA)	1	Q801

92.1	410072013210R	XSTR 2PC1815GR*I VT (PHILIPS)	1	
92.2	410072013150R	XSTR UTC2SC1815L-GR NPN TO92,ROHS(UTC)	1	

PCBA IF Board

ITEM	P/N	DESCRIPTION	qty	LOCATION
1	790451320900R	PCBA,IF BOARD,OTHER,LE2016-9J0	1	
2	430631080070R	WFR 2.0mm 8P 180°4500-08 ROHS	1	CN101
3	440819015070R	CON,D-SUB,FEM.15P RA W/O SCREW DV11201-H5K8-4F	1	CN102
4	430631080030R	WFR 2.0mm 8P R/A HF5608E ROHS	1	CN103
5	430631300010R	WAFER 2x15P 2.0mm 180°,ROHS	1	CN105
6	420431010461R	CAP EC 100uF 16V M,105℃ ST5x11(SK)	4	C102,C103,C111,C114
7	420431000260R	CAP EC 10uF 25V M,105℃ ST5x11	12	C116,C131,C145,C157,C160,C161,C162,C163,C174,C175,C188,C207
8	432008010340R	XTAL 12MHz AT-49 DIP,16pF 30PPM	1	X101
9	432008010270R	XTAL 14.31818MHz HC-49US DIP16pF 30PPM	1	X102
10	420421010460R	CAP SD 100uF 16V M,105℃ ST,5x11	1	C109
11	790451340900R	PCBA,IF BOARD,SMD, LE2016-9J0	1	
12	419311040060R	C SMD(0603) X7R 0.1uF/50V K	76	C101,C106,C107,C108,C110
				C112,C113,C115,C124,C125
				C126,C127,C128,C132,C137
				C138,C139,C140,C141,C142
				C143,C144,C146,C147,C148
				C149,C150,C151,C152,C153
				C154,C155,C156,C158,C159
				C164,C165,C166,C167,C168
				C169,C170,C171,C172,C173
				C176,C177,C178,C181,C182
				C183,C186,C190,C191,C192
				C193,C194,C195,C196,C197
				C198,C199,C200,C201,C202
				C203,C206,C209,C210,C211
				C212,C213,C214,C215,C216
				C205
13	419341054670R	C SMD(0805) Y5V 1uF/16V Z ROHS	4	C105,C189,C136,C208
14	419311030060R	C SMD(0603) X7R 0.01uF/50V K	9	C117,C118,C119,C120,C121,C122,C123,C187,C204
15	419304700560R	C SMD(0603) NPO 47PF/50V J	2	C130,C129
16	419301500560R	C SMD(0603) NPO 15PF/50V J	4	C134,C135,C179,C180
17	411020062020R	DIO SM4001-LF 50V/1A MELF(FRONTIER)	1	D101
17.1	411020066450R	DIO SR4004PT 400V/1A MELF(CHENMKO)	1	
18	411020047020R	DIO BAV70-LF 70V SOT23 (FEC)	1	D102
18.1	411020047210R	DIO BAV70 85V SOT23 (PHILIPS)	1	

19	411020026210R	DIO BAV99 350mW 70V SOT-23(PHI	4	D103,D104,D105,D106
19.1	411020026020R	DIO BAV99-LF 350mW 70V SOT-23ROHS (FEC)	4	
19.2	411020026390R	DIO BAV99,SOT-23(INFINEON)ROHS	4	
20	432002360111R	BEAD CORE SMD(0805) 600Ω 2APBY201209T-601Y-N ROHS	13	FB101,FB102,FB104,FB105 FB106,FB107,FB108,FB109 FB110,FB111,FB112,FB113 FB114
21	410500045210R	XSTR PMBT3904 NPN 200MA,40V SOT23(PHILIPS)	2	Q101,Q103
21.1	410500045140R	XSTR MMBT3904LT1G NPN 200MA40V SOT23ROHS (ON)	2	
21.2	410500045130R	XSTR MMBT3904 NPN SOT-23(INFINEON)	2	
22	410500068290R	XSTR AP2305GN P-CH SOT23(APEC)	1	Q102
23	410500050210R	XSTR 2N7002,N-CH FET SOT-23(PHILIPS)	1	Q104
23.4	410500050130R	XSTR SN7002 N-C SOT-23(INFINEON)	1	
24	410500046210R	XSTR PMBT3906 PNP 200MA,40VSOT23(PHILIPS)	2	Q105,Q106
24.1	410500046180R	XSTR MMBT3906LT1G PNP 200mA40V SOT23 (ON)	2	
24.2	410500046130R	XSTR MMBT3906 PNP SOT-23(INFINEON)	2	
25	415754725080R	RP(0612)4.7KΩx4 1/16W J 8P4R	4	RP101,RP102,RP103,RP104
26	415752205080R	RP(0612)22Ωx4 1/16W J 8P4R	8	RP105,RP106,RP107,RP108
				RP109,RP110,RP111,RP112
27	414916047250R	RES SMD (0603) 4.7KΩ J,RT	13	R101,R103,R104,R105,R119
				R120,R130,R132,R133,R143
				R145,R151,R152
28	414916010350R	RES SMD (0603) 10KΩ J,RT ROHS	7	R102,R108,R125,R126,R147, R148,R162
29	414916010450R	RES SMD (0603) 100KΩ J,RT	1	R106
30	414916020350R	RES SMD (0603) 20KΩ J,RT ROHS	1	R107
31	414916022050R	RES SMD (0603) 22Ω J,RT ROHS	8	R170,R171,R172,R173,R174, R175,R176,R177
32	414916750910R	RES SMD (0603) 75Ω F,RT ROHS	3	R112,R113,R114
33	414916047050R	RES SMD (0603) 47Ω J,RT ROHS	3	R115,R116,R117
34	414916010150R	RES SMD (0603) 100Ω J,RT ROHS	12	R122,R123,R124,R127,R137
				R140,R141,R149,R150,R153
				R154,R155
35	414916000050R	RES SMD (0603) 0Ω J,RT ROHS	1	R128
36	414916022150R	RES SMD (0603) 220Ω J,RT ROHS	2	R156,R157
37	414916390010R	RES SMD (0603) 390Ω F,RT ROHS	1	R158
38	414916015250R	RES SMD (0603) 1.5KΩ J,RT	2	R163,R164
39	414916100110R	RES SMD (0603) 1KΩ F,RT ROHS	5	R167,R168,R178,R179,R134
40	414916015150R	RES SMD (0603) 150Ω J,RT ROHS	1	R169
41	414916018150R	RES SMD (0603) 180Ω J,RT ROHS	1	R161
42	414916010550R	RES SMD (0603) 1MΩ J,RT ROHS	1	R131
43	414916082050R	RES SMD (0603) 82Ω J,RT ROHS	3	R109,R110,R111
44	412000419700R	IC AIC1084-18PM TO263(AIC)ROHS	1	U101

44.1	412000419130R	IC AP1084K18LA TO263-3L(ANACHIP)	1	
44.2	412000419020R	IC UZ1084L-1.8V TO263(UTC)ROHS	1	
45	412000280690R	IC FS8860-25PJ SOT223(FORTUNE)	1	U102
45.1	412000280630R	IC BL1117-25CX SOT223(BSC)ROHS	1	
45.2	412000280020R	IC LD1117AL-2.5V-A SOT-223(UTC	1	
46	412000008481R	IC AT24C02AN-10SU-2.7 SOP8 2K(ATMEL)	1	U103
46.1	412000361990R	IC CAT24WC02W-TE13 SOIC-8 ROHS(CATALYST)	1	
46.2	412000010280R	IC M24C02-WMN6TP SO8 2K (ST)	1	
47	412000279480R	IC AT24C04N-10SU-2.7 SOP8 4K(ATMEL)	1	U104
47.1	412000279990R	IC CAT24WC04W-TE13 (CATALYST)	1	
47.2	412000279280R	IC M24C04-WMN6TP4K SOP8 (ST)	1	
48	412000417190R	IC MST9251A-LF-205 PQFP208(MSTAR)	1	U105
49	412000425530R	IC HY5DU283222BFP-36 144BALL,FABG(HYNIX)	1	U106
49.1	412000425240R	IC K4D263238E-VC36 144BALL,FABG(SAMSUNG)	1	
49.2	412000427530R	IC HY5DU283222BFP-33 144BALL,FABG(HYNIX)	1	
49.3	412000427240R	IC K4D263238E-VC33 144BALL,FABG(SAMSUNG)	1	
50	411100662950R	ZENER 6.2V ZMM55-C6V2-LF SMD(FRONTIER)	5	ZD101,ZD102,ZD103,ZD104, ZD105
51	506140005700R	LABEL,BARCODE,BLANK,33x7mm, ROHS,FOR PCB	1	
52	490451300100R	PCB,INTERFACE, LE2016 ROHS	1	PCB
53	432002312144R	BEAD CORE SMD(0603)120Ω 300mA SBK160808T-121Y-N,ROHS	1	FB103
54	735110003900R	ASSY,MCU&PROGRAM, LE2016-9J0	1	U107
55	412000406040R	IC MTV312GMV64 PLCC-44 ROHS(MYSON)	1	U107
56	506390180100	LABEL,PROGRAM LE1501-030	1	
57	629030003900R	PROGRAM, LE2016-9J0	1	

PCBA KEY PAD

ITEM	P/N	DESCRIPTION	qty	LOCATION
1	411070038450R	LED Y/G 2x4x5mm HTL-VGVY4R1N4-FB(HONGTONG)	1.0000	LED101
2	430602980120R	SW TACT 160gf 1P,R/A H=4.3mm DIP SFKHHAL2420	5.0000	SW101,SW102,SW103,SW104,SW105
3	430631080110R	WAFER 8P 1.25mm 90° 125MX-08LT	1.0000	CN107
4	490401500101R	PCB,KEY PAD,LE1710 (NEW KEY)	1.0000	PCB

Attachment 2- Schematic

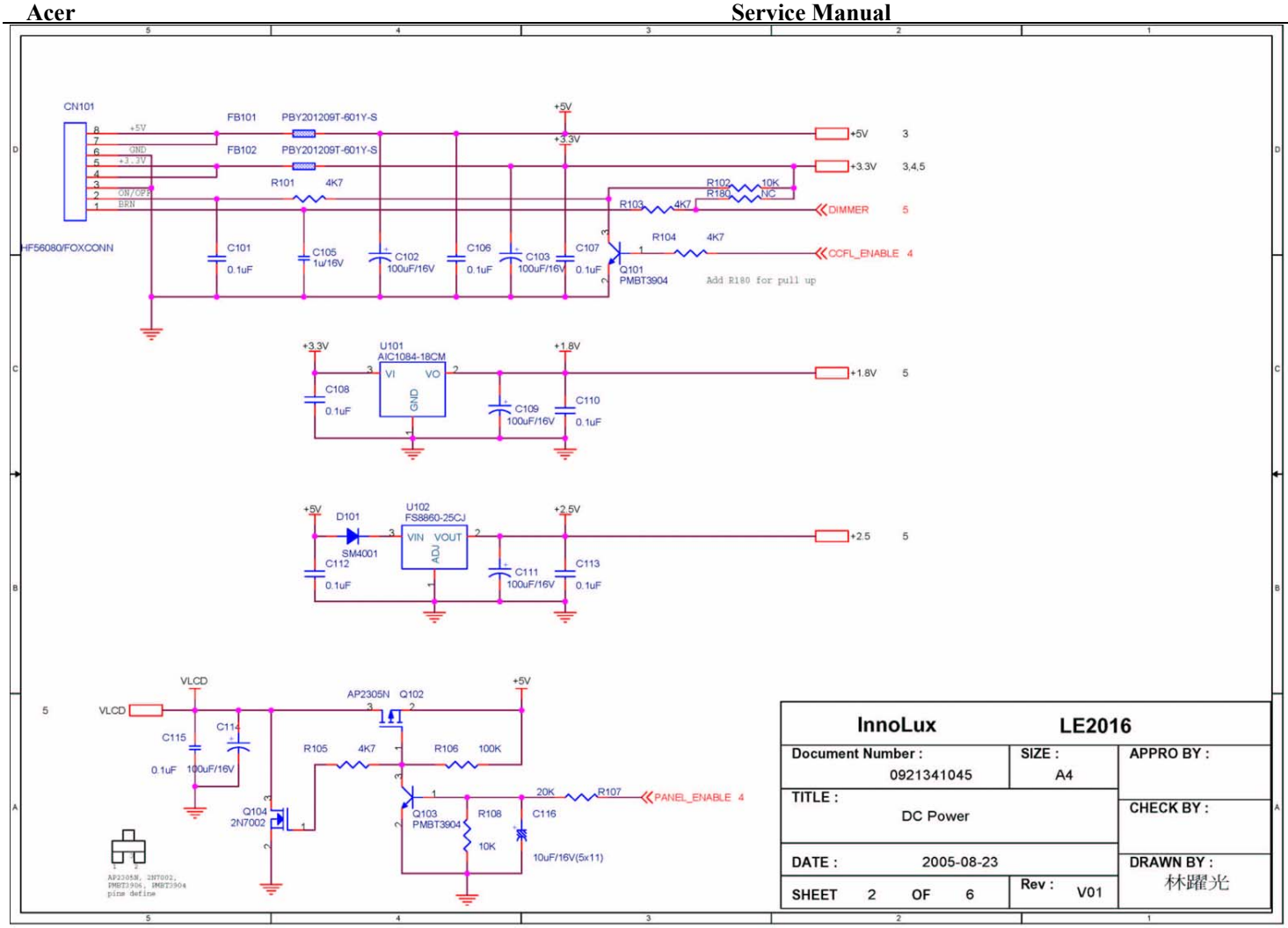
Project Name	LE2016 Interface Board Schematic (for Acer AL2016W LCD Monitor)

REVISION HISTORY

Date	Author	Version	Comments	Remark
2005-06-03	林躍光	X1	First modify for EVT	
2005-06-06	林躍光	X3	3th modify for EVT	
2005-07-07	李偉	X4	4th modify for DVT Change DDR, Add cable detect	
2005-08-23	林躍光	V01	Release for PVT	

APPROVED TO RELEASE

InnoLux	LE2016	
Document Number : 0921341045	SIZE : A4	APPRO BY :
TITLE : History		CHECK BY :
DATE : 2005-08-23		DRAWN BY : 林躍光
SHEET 1 OF 6	Rev : V01	



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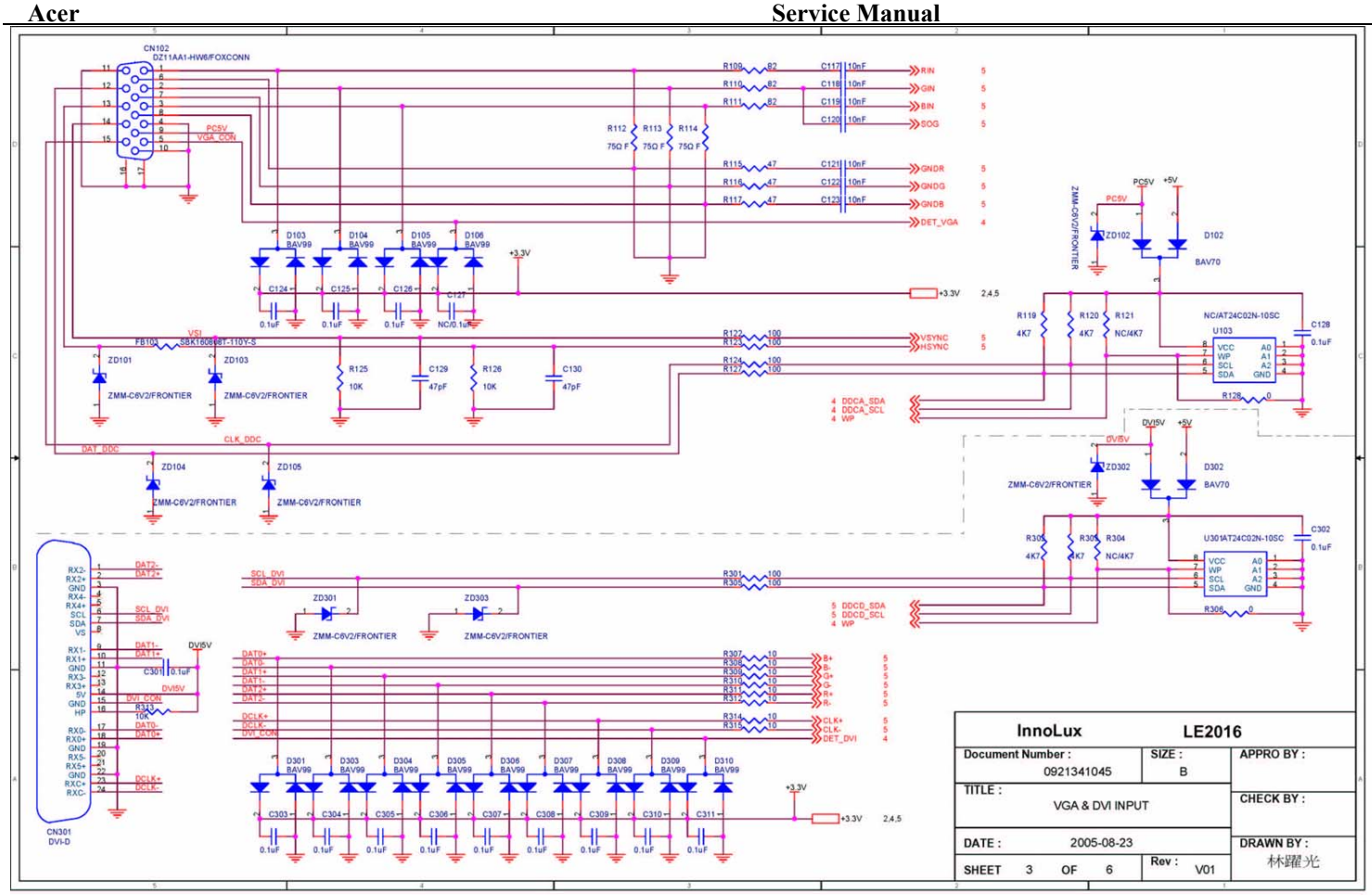
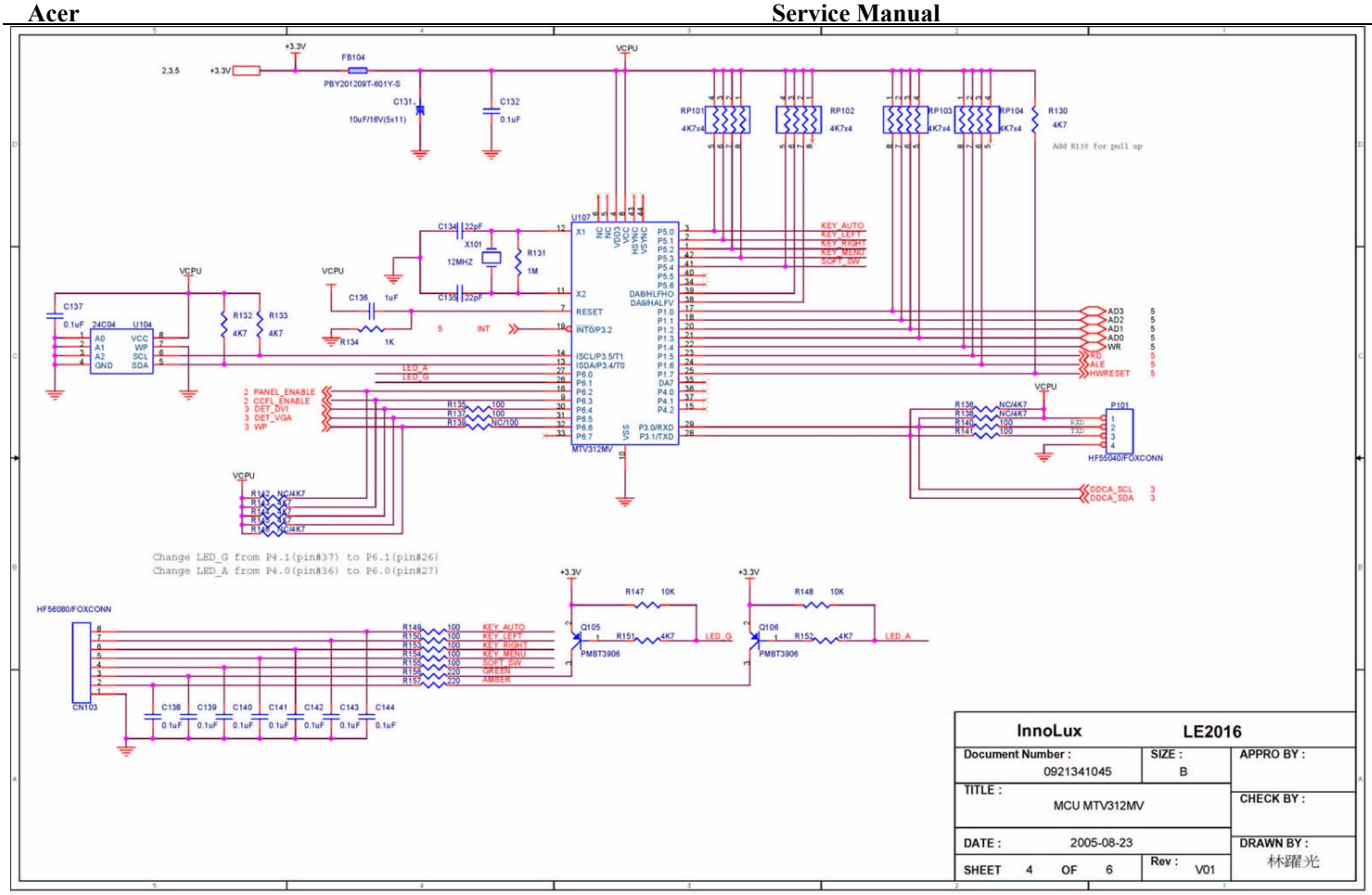
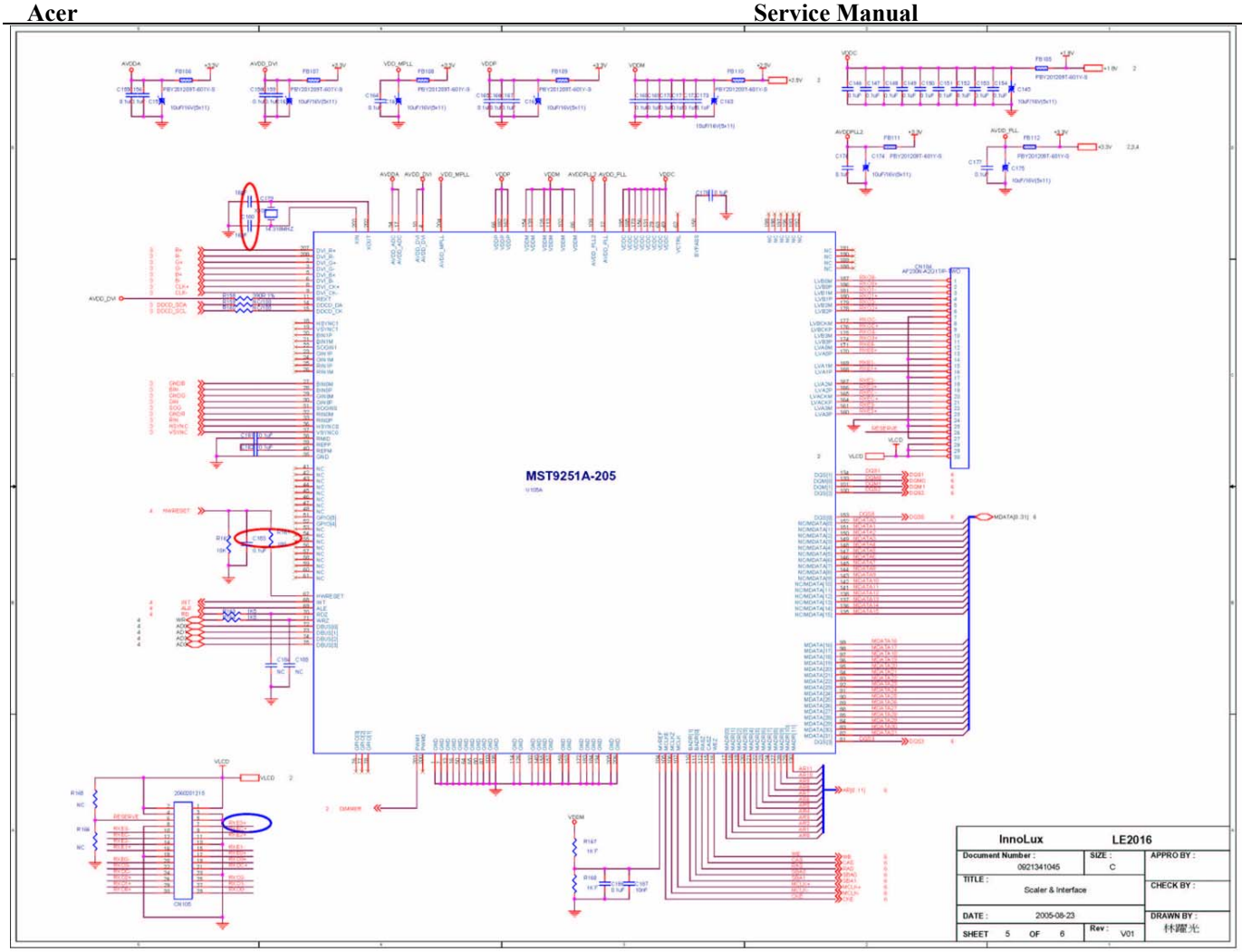
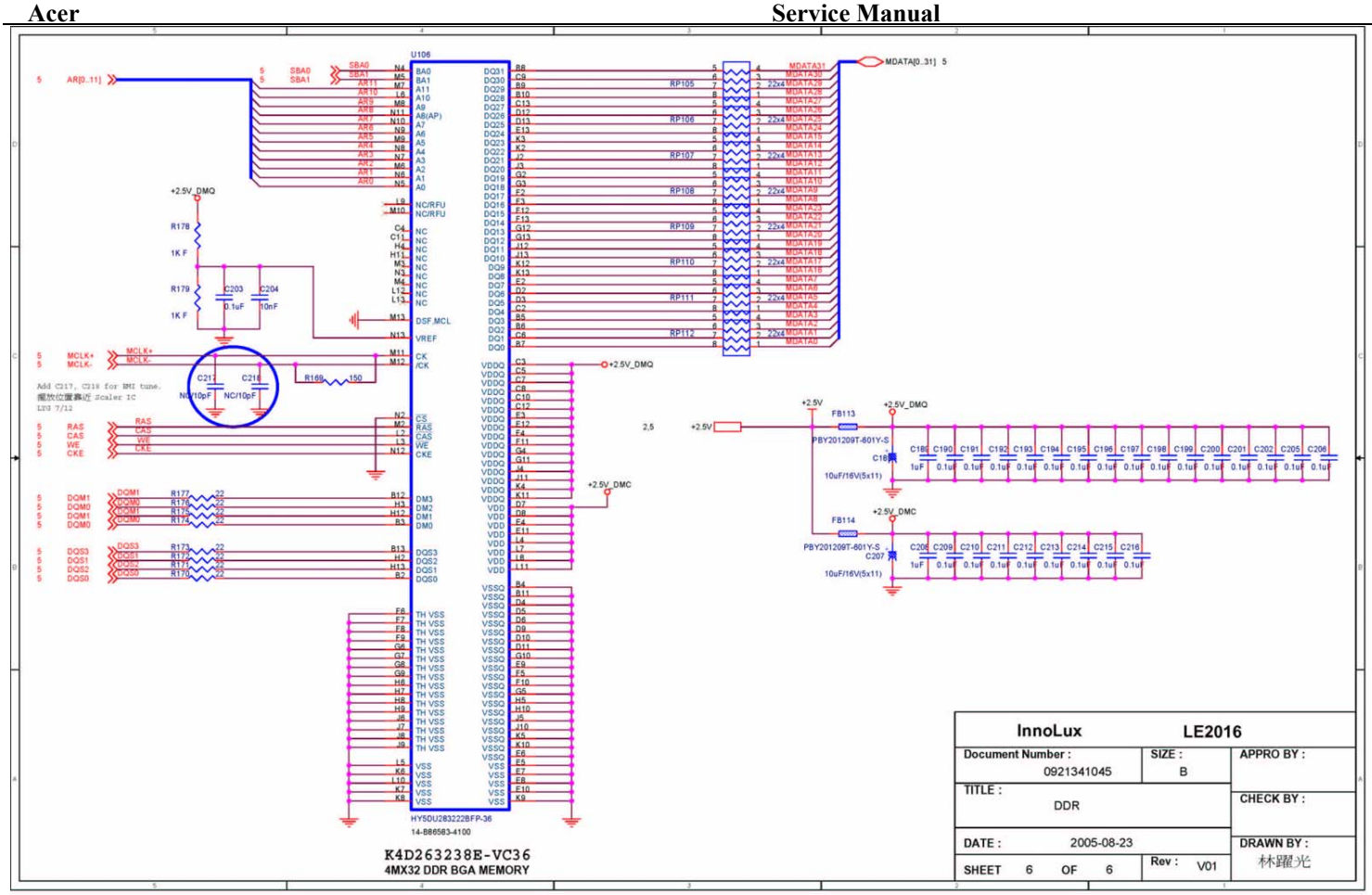
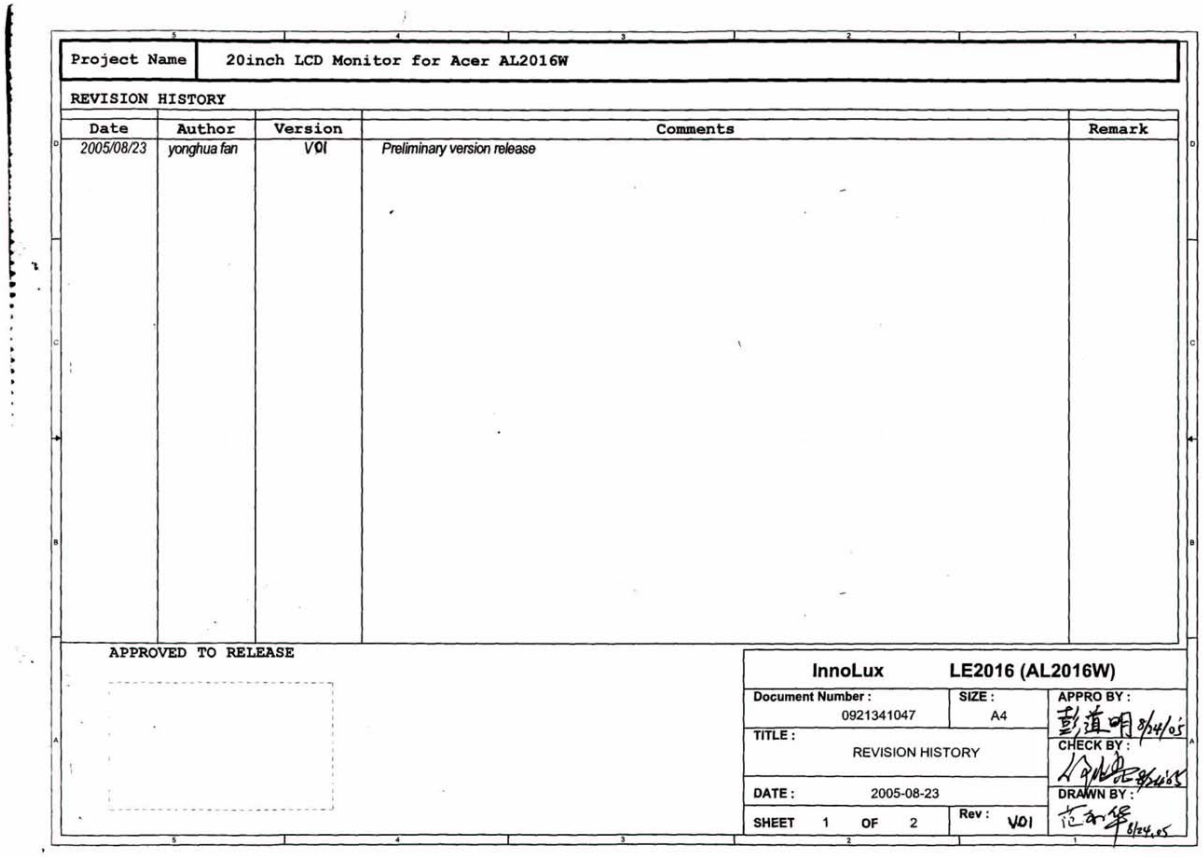
Document Number : 0921341045	SIZE : A4	APPRO BY :
TITLE : DC Power		CHECK BY :
DATE : 2005-08-23		DRAWN BY : 林躍光
SHEET 2 OF 6	Rev : V01	











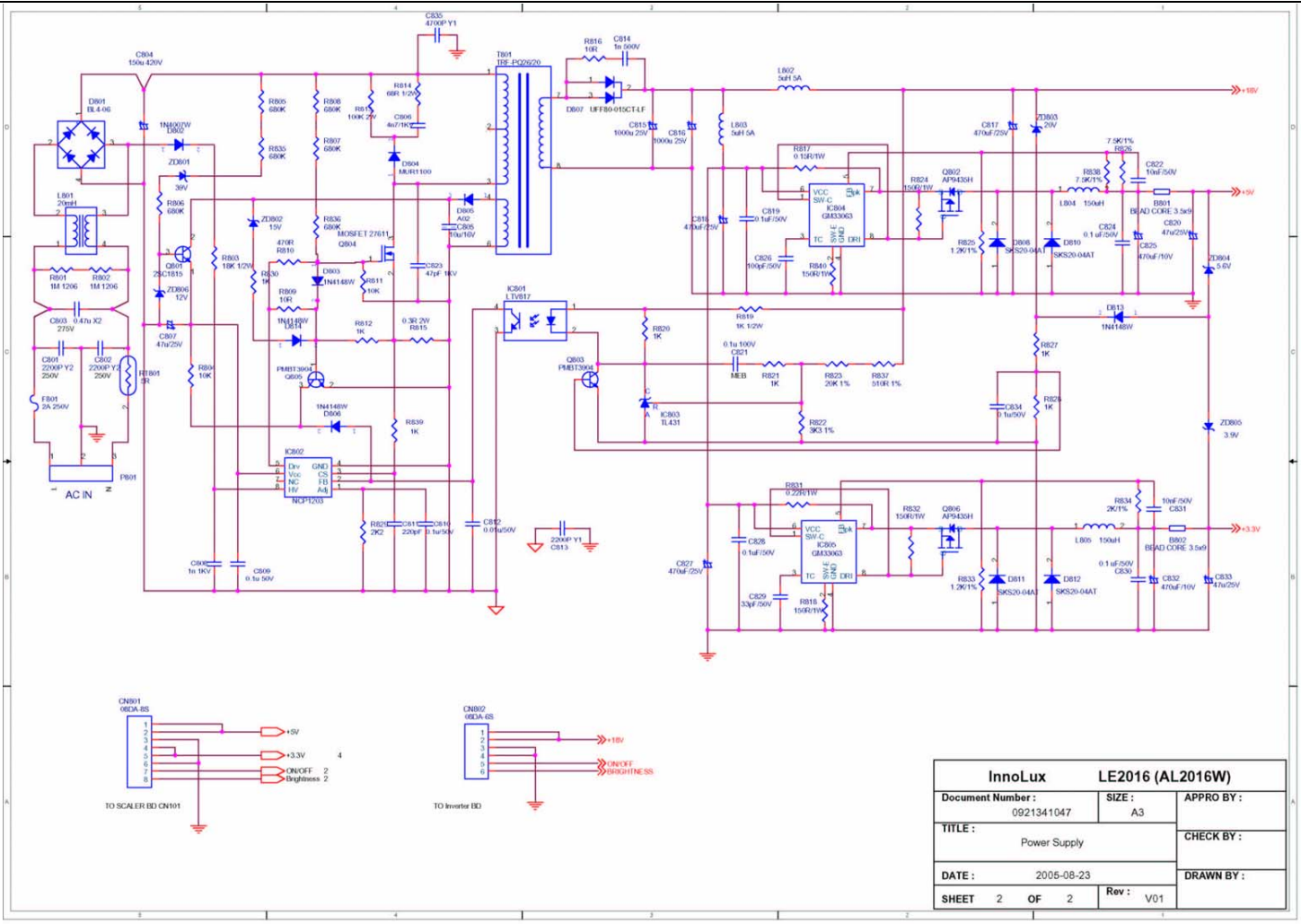
Project Name	20inch LCD Monitor for Acer AL2016W

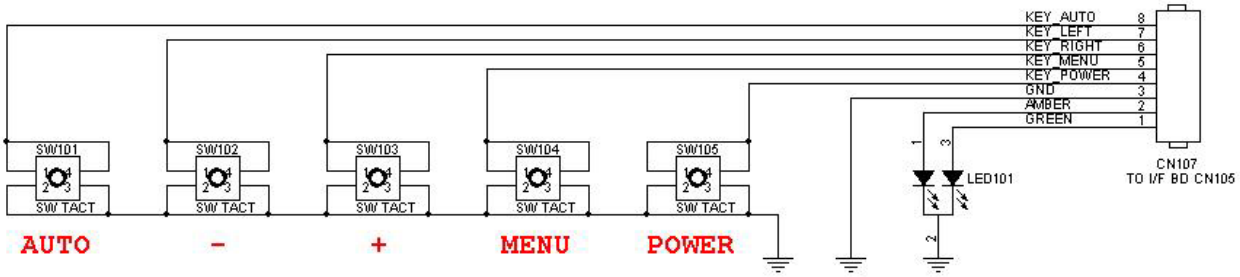
REVISION HISTORY

Date	Author	Version	Comments	Remark
2005/08/23	yonghua fan	V01	Preliminary version release	

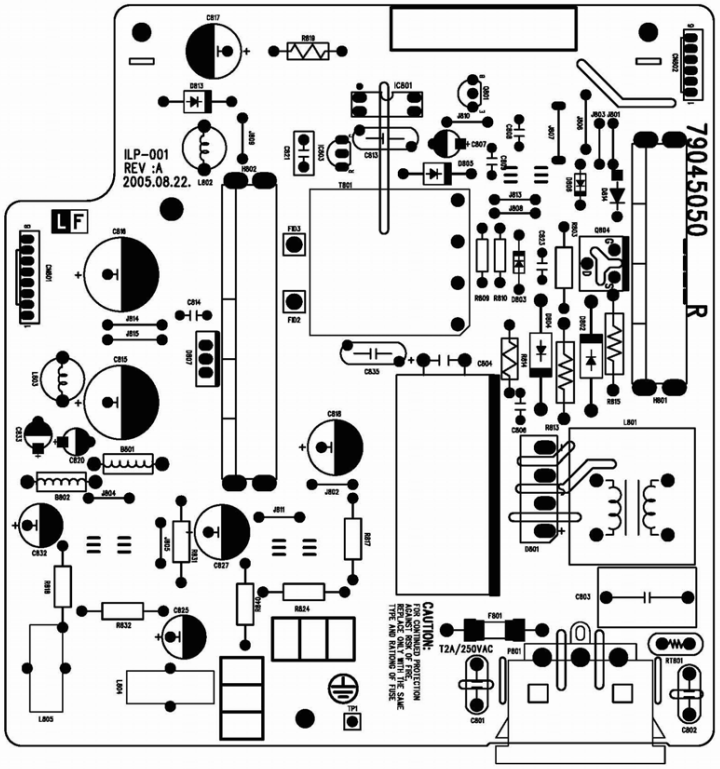
APPROVED TO RELEASE

InnoLux	LE2016 (AL2016W)	
Document Number : 0921341047	SIZE : A4	APPRO BY : 彭道明 8/24/05
TITLE : REVISION HISTORY		CHECK BY :
DATE : 2005-08-23		DRAWN BY :
SHEET 1 OF 2	Rev : V01	





Attachment 3- PCB Layout



LAYER	SILKSCREEN TOP			
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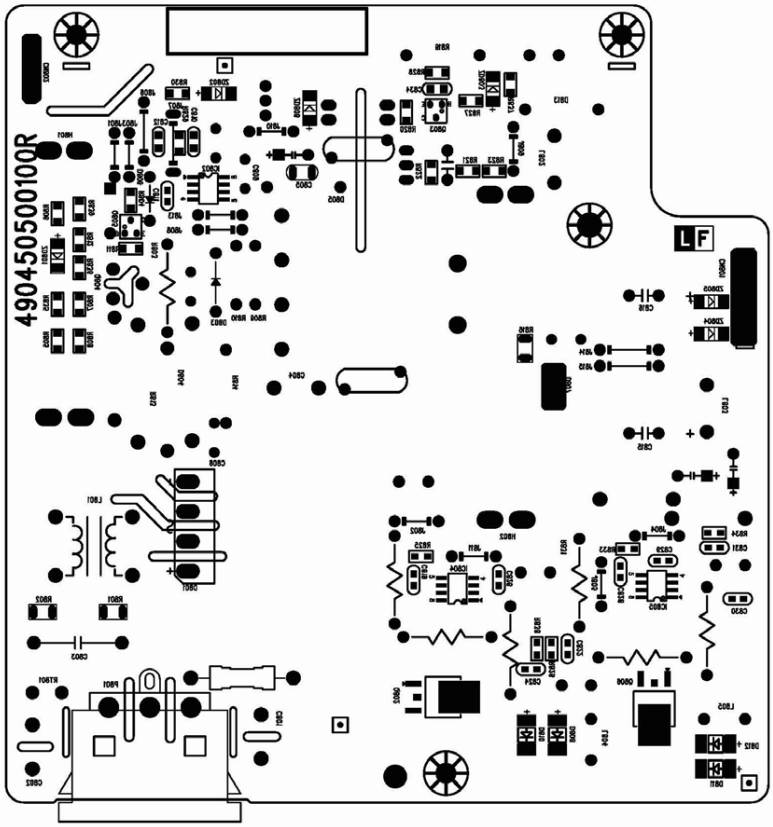
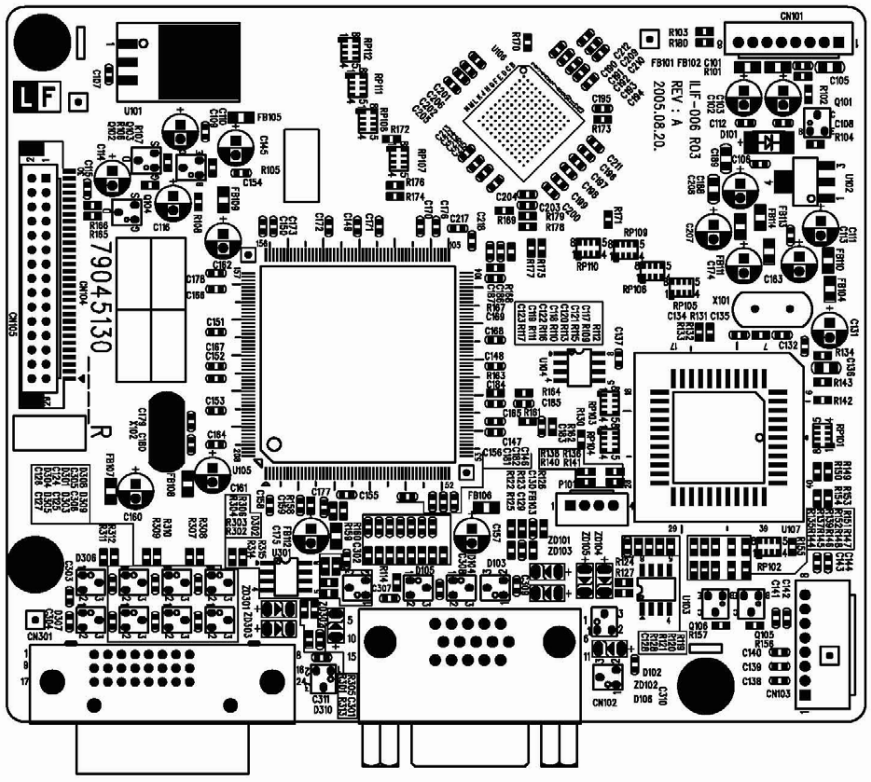
FILE NAME :	ILP-001.PCB	DATE :	2005/8/22	

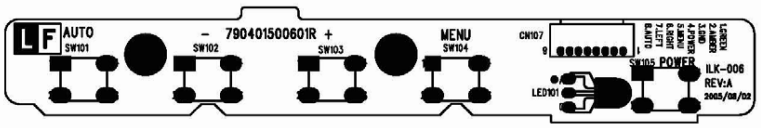


LAYER	SILKSCREEN BOTTOM		
PCB NO :	ILP-001	REV : A	DESIGNER: Wang Qing
FILE NAME :	ILP-001.PCB	DATE :	2005/8/22

LAYER	SILKSCREEN TOP			
PCB NO :	ILIF-006 RA	REV :	A	DESIGNER: LIU HUA
FILE NAME :	ILIF-006.PCB	DATE :	2005/08/20	

490451300100R





ILK-006 RA050802(BÂx)- - Mon Aug 29 18:41:16 2005